PB-248 139

SURVEY AND EVALUATION OF KINETIC DATA ON REACTIONS IN METHANE/AIR COMBUSTION

Victor S. Engleman

Exxon Research and Engineering Company

Prepared for:

Environmental Protection Agency

January 1976

DISTRIBUTED BY:

NTIS

National Technical Information Service
U. S. DEPARTMENT OF COMMERCE

PB 248 139

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
US Department of Commerce
Springfield, VA. 22151

RESEARCH REPORTING SERIES

Research reports of the Office of Research and Development, U.S. Environmental Protection Agency, have been grouped into five series. These five broad categories were established to facilitate further development and application of environmental technology. Elimination of traditional grouping was consciously planned to foster technology transfer and a maximum interface in related fields. The five series are:

1. Environmental Health Effects Research
2. Environmental Protection Technology
3. Ecological Research
4. Environmental Monitoring
5. Socioeconomic Environmental Studies

This report has been assigned to the ENVIRONMENTAL PROTECTION TECHNOLOGY series. This series describes research performed to develop and demonstrate instrumentation, equipment and methodology to repair or prevent environmental degradation from point and non-point sources of pollution. This work provides the new or improved technology required for the control and treatment of pollution sources to meet environmental quality standards.

EPA REVIEW NOTICE

This report has been reviewed by the U.S. Environmental Protection Agency, and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161.

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA-600/2-76-003		

4. TITLE AND SUBTITLE	5. REPORT DATE
Survey and Evaluation of Kinetic Data on Reactions in Methane/Air Combustion	January 1976
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
Victor S. Engleman	
9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELEMENT NO.
Exxon Research and Engineering Company Government Research Laboratory P.O. Box 8 Linden, New Jersey 07036	1AB014; ROAP 21BCC-013
	11. CONTRACT/GRANT NO.
	68-02-0224
12. SPONSORING AGENCY NAME AND ADDRESS	13. TYPE OF REPORT AND PERIOD COVERED
EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711	Phase; 4/73-5/75
	14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES

16. ABSTRACT The report gives results of a survey and evaluation of kinetic data on the chemical reactions involved in methane/air combustion at 1 atm pressure, 80-125% stoichiometric air, and combustion temperatures between 1500 and 2500K. First, a set of species commonly observed or postulated to play a role in methane/air combustion was selected. Next, a computer code was developed, assembling all mathematically possible unimolecular and bimolecular reactions involving those species. The report includes information on the thermochemistry, a literature survey of reported rate data, an evaluation of the importance of each reaction, recommendations of the best rate data from that available in the literature, and rate estimates for potentially important reactions for which no satisfactory rate was found in the literature. The report concludes with: a description of procedures used to calculate the thermochemistry of methoxy•; a cross-index of all reactions involving a particular species; a master list of all reactions for an expanded number of species; and a summary of the information on reactions in the kinetics survey.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Air Pollution	Chemical Reactors	Air Pollution Control	13B 07A
Reaction Kinetics	Thermochemistry	Stationary Sources	07D
Combustion	Chemical Reactions	Rate Data Survey	21B
Nitrogen Oxides		Methane/Air Combustion	07B
Methane		Well-Stirred Reactors	07C
Mathematical Models			12A

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
Unlimited	Unclassified	477
	20. SECURITY CLASS *(This page)*	22. PRICE
	Unclassified	$12.50

EPA Form 2220-1 (9-73)

PRICES SUBJECT TO CHANGE

EPA-600/2-76-003

SURVEY AND EVALUATION OF KINETIC DATA ON REACTIONS IN METHANE/AIR COMBUSTION

by

Victor S. Engleman

Exxon Research and Engineering Company
P.O. Box 8
Linden, New Jersey 07036

Contract No. 68-02-0224
ROAP No. 21BCC-013
Program Element No. 1AB014

EPA Project Officer: W. Steven Lanier

Industrial Environmental Research Laboratory
Office of Energy, Minerals, and Industry
Research Triangle Park, NC 27711

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Research and Development
Washington, DC 20460

January 1976

FOREWORD

This report presents thermochemical and kinetic data on chemical reactions in methane-air combustion. Recommendations are made on kinetic parameters to be used in combustion calculations. This survey of kinetics is a part of a study performed by Exxon Research and Engineering Company, "The Chemical Mechanism and Kinetics of the Formation of NO_x and Other Pollutants under Normal and Combustion Modification Conditions," funded by the Environmental Protection Agency under Contract No. 68-02-0224. The Principal Investigator for the contract was Dr. Victor S. Engleman and the Project Director was Dr. William Bartok.

The helpful comments of Mr. W. S. Lanier (Project Officer for this contract) and Messrs. D. W. Pershing and G. B. Martin of the EPA are gratefully acknowledged. In addition, we wish to express our appreciation to those who have provided valuable help in conducting the kinetics survey. To Dr. David Garvin, Coordinator of the Chemical Kinetics Information Center of the National Bureau of Standards, our thanks for his suggestions on the approach to this challenging task. To Drs. R. Shaw, D. M. Golden, and S. W. Benson for their helpful consultation in providing estimates of rates of additional reactions of potential importance (acknowledged separately in Section 8). To Dr. Albert L. Myerson of the Corporate Research Laboratories of Exxon Research and Engineering Company for reviewing the recommended rates and for many long hours of discussions on the relative consistency of data from various sources. Our thanks as well to Dr. Richard P. Smith for his skillful handling of the computerization of the data base. We should also like to thank those who reviewed the interim report of this work for their helpful suggestions on ways to make this survey as useful as possible.

TABLE OF CONTENTS

	FOREWORD	iii
1.	INTRODUCTION	1-1
2.	A GUIDE TO THE USE OF THIS REPORT	2-1
3.	REACTION LISTINGS	3-1
4.	TABLES OF THERMOCHEMICAL DATA	4-1
5.	TABLES OF KINETIC DATA	5-1
6.	EVALUATION OF PROBABLE RELATIVE REACTION IMPORTANCE	6-1
7.	RECOMMENDED RATES FOR REACTIONS FOUND IN THE LITERATURE AND ADDITIONAL REACTIONS OF POTENTIAL IMPORTANCE	7-1
8.	ESTIMATES FOR ADDITIONAL REACTIONS	8-1
9.	REFERENCES	9-1
	APPENDIX A - THERMOCHEMISTRY OF CH_3O	A-1
	APPENDIX B - CROSS-INDEX OF REACTIONS FOR 25 SPECIES	B-1
	APPENDIX C - MASTER LIST OF REACTIONS FOR 39 SPECIES	C-1
	APPENDIX D - SUMMARY OF INFORMATION ON REACTIONS IN KINETICS SURVEY	D-1

1. INTRODUCTION

As the approach to combustion related pollutant formation becomes more sophisticated, more information is required on the elementary processes that occur. Chemical kinetics, fluid mechanics and heat transfer are all important factors in various stages of combustion and pollutant formation. It was to further the development of a detailed approach to this problem that this review of chemical kinetic data was undertaken. To allow a tractable scope for the task, the review was limited to methane-air combustion.

This report on the survey and evaluation of kinetic data on the reactions in methane-air combustion is intended initially for use in calculations of methane-air combustion at one atmosphere, between 80 and 125 percent stoichiometric air, between 1500 and 2500K. The rate data extends beyond the range indicated but primary attention was focused within the range as much as possible.

It should be noted that the rates recommended in this report supersede previous preliminary recommendations made during the course of this study*. In assembling rate recommendations from diverse sources, it was found that the bases for estimation of rates were not necessarily consistent from source to source. Several inconsistencies in relative rates of reactions were uncovered as this study progressed and have been rectified when recognized. While rate recommendations are evolutionary in nature and the specific rates recommended here are by no means final, it is felt that they represent a good starting point. Screening studies resulting in evaluation of relative importance of individual reactions under specific conditions should make use of the listings of competitive reactions contained in this report to determine whether potentially important reactions have been eliminated.

The reader is directed to Section 2 for a description of the contents of this report and their use. Further detailed information on the use of specific sections is given at the beginning of each section.

Comments on the content or format of this report will be greatly appreciated.

* While most of the recommendations were made in reports with limited distribution, one of the preliminary sets was used and referenced in a published EPA report entitled "Kinetic Mechanism of Methane/Air Combustion with Pollutant Formation", Report No. EPA-650/2-74-045.

2. A GUIDE TO THE USE OF THIS REPORT

The working portion of this report is contained in Sections 3 through 9. In this section an indication will be given of the rationale and approach used in the survey as well as some practical guidelines on its use.

2.1 Section and Organization of Reactions

As indicated in the introduction, the survey was limited to methane-air combustion. As such, some decisions still had to be made as to limitations in species and reactions. It was realized that it was desirable to minimize the number of species to keep the task to a tractable size, and yet elimination of important species or reactions certainly would not be desirable. The approach taken was to select species on thermochemical grounds giving consideration to species commonly observed or postulated to play a role in combustion of methane-air. Thus, a primary list of 25 species was considered for use in this survey. An additional 14 species were selected for secondary consideration. Species with a carbon number higher than 2 and reduced nitrogen compounds more complex than HCN or NH, were considered unlikely for methane-air combustion under the conditions considered (1 atmosphere, 1500-2500K, 80-125% stoichiometric air).

The list of primary species along with the considerations that entered into their selection and the JANNAF table reference for thermochemical data are given in Table 2-1 below. Since CH_3O thermochemistry was not included in the JANNAF tables, tables were constructed from the data from CH_3F. The details are given in Appendix A. The species in Table 2-1 are sorted in alphanumeric sequence consistent with the practice of the JANNAF tables.

Table 2-1

Primary Species for
Methane-Air Combustion

Species	Log KP at 2000K	Considerations	JANNAF Reference
CH	-10	hydrocarbon radical	12/67
CHN	-2	possible role in prompt NO	12/69
CHO	+1	stable radical	12/70
CH_2	-7	hydrocarbon radical	12/72
CH_2O	+1	combustion intermediate	3/61
CH_3	+5	hydrocarbon radical	6/69
CH_3O	-6	possible role in ignition	constructed from CH_3F 12/63
CH_4	-3	starting material	3/61
CN	-6	possible role in prompt NO	6/69
CO	+7	combustion product	3/61
CO_2	+10	combustion product	9/65
H	-3	combustion intermediate	9/65
HN	-9	possible role in prompt NO	7/72
HNO	-5	possible role in prompt NO	3/63
HO	0	combustion intermeidate	12/70
HO_2	-3	combustion intermediate	3/64
H_2	0	combustion product	3/61
H_2O	+4	combustion product	3/61
N	-9	important role NO formation	3/61
NO	-2	of prime interest	6/63
NO_2	-4	oxidation of NO	9/64
N_2	0	starting material	3/61
N_2O	-6	possible role NO formation	12/64
O	-3	combustion intermediate	6/62
O_2	0	starting material	3/61

The list of secondary species is given below in Table 2-2 along with supporting information.

Table 2-2

Secondary Species for
Methane-Air Combustion

Species	Log KP at 2000K	Considerations
C	-10	possible role in soot formation
CNO		possible role NO/HC interaction
C_2	-12	possible role in soot formation
C_2H	-6	C_2 intermediates possibly important for fuel rich methane or higher hydrocarbons
C_2H_2	-3	
C_2H_3		
C_2H_4	-5	
C_2H_5		
C_2H_6		
H_2N	-6	possible intermediate
H_2O_2		possible role in ignition
H_3N	-5	possible role fuel rich
NO_3	-10	higher oxidation of NO
O_3	-7	possible role in igntion

Charged species and excited species were not considered for the purpose of this study.

By use of a computer code developed for this study, all mathematically possible unimolecular and bimolecular reactions were assembled for the 25 species primary list and for the 39 species combined primary and secondary list. The survey was restricted to the primary species list which resulted in 322 reactions. The index for these reactions is presented in Section 3. A cross-index for the 322 reactions is given in Appendix B. Inclusion of the 14 secondary species results in a list of 1,078 reactions which are provided for reference in Appendix C.

It should be noted that these reaction lists are merely mathematical constructions and further evaluation of the likelihood of any of these reactions in a physical or chemical sense is required. Many of the reactions so constructed are not elementary reactions; that is, they would not occur in a single step under the conditions of interest. Other reactions may be severely hindered sterically or have thermochemical hindrances. Such an evaluation was undertaken for the 322 reaction list as will be discussed.

2.2 Use of the Tables

The main portion of this report consists of a series of tables with information on the thermochemistry, the literature survey, an evaluation of reaction importance, recommended rates for reactions in the literature,and additional estimates for potentially important reactions for which no satisfactory rate was found in the literature.

Information on the thermochemistry of each of the 322 reactions is given in Section 4. Values of ΔH, ΔCp, ΔS and Log K_c were calculated from the thermochemistry of each of the species.

Tables of kinetic data found in the literature for reactions involving the primary species (with the exception of CH_3O which was included subsequent to the literature search) are given in Section 5. Rate parameters as well as notes on the method used and comments on the data are tabulated.

The potential importance of each of the 322 reactions was evaluated for methane-air combustion, at one atmosphere, from 1500-2500K and 80-125% stoichiometric air. Thermochemistry and sterochemistry as well as probable relative concentrations were factored into this evaluation. The results are presented in Section 6.

Section 7 contains recommended rates for those reactions found in the literature. Where possible, recommendations from existing critical evaluations were used. If no evaluation was considered sufficiently reliable, experimental data was evaluated over as wide a range of temperature as possible with emphasis on the 1500-2500K range. Where only estimates were available, the one considered the most reliable was selected. In certain cases, data at lower temperatures were extrapolated to higher temperature by the use of a T^1 factor in the preexponential. In other cases, activation energies were adjusted to reflect revised thermochemistry.

In some cases, information was not available in the literature on potentially important reactions. In these cases, estimates were made by existing estimation techniques or estimates were requested through EPA Grant No. R-800798 from Stanford Research Institute. These estimates are presented in Section 8.

A summary of the information on the recommended rates for the reactions in the kinetics survey is presented in Appendix D.

3. REACTION LISTINGS

This section serves as an index to the tabular information in this report. The 322 reactions are presented in master filing order along with their index numbers which are carried through the remainder of the report. The filing order was selected to allow unambiguous location of a reaction by following a few simple rules. The species are named and ordered by alphanumeric sequence as in the JANNAF tables as shown in Section 2. Thus, CH precedes CH_2 which precedes CH_3, etc. This technique leads to some non-standard species names (such as HO instead of OH, HN instead of NH, and CHN instead of HCN), but this practice should cause no confusion. Using the alphanumeric species names, it is easy to determine a reaction's location in the master filing list by some simple transformations.

For example, if one were to wish to find the location of a reaction such as

$$N + OH \rightarrow NO + H$$

three steps would be required:

(1) make sure the species are named according to alphanumeric sequence

$$N + HO = NO + H$$

(2) sort each side into alphanumeric order

$$HO + N = H + NO$$

(3) switch left and right sides if necessary to put the first sorted species on the left

$$H + NO = HO + N$$

It will be found that this is reaction number 245 in the master list. Each reaction is listed only once in the master list and each data table in this report includes information for the forward and reverse reaction appropriately identified.

If one wishes to determine all the competitive reactions for a given pair of species, a cross-index is provided in Appendix B. In this cross-index, the species are permuted so that each reaction appears up to four times. Thus, using the example of reaction 245

$$H + NO = HO + N$$

the table for the reactions of H atoms reveals the fact that three reactions compete:

243 H + NO = HN + O

244 H + NO + M = HNO + M

245 H + NO = HO + N

And in the reverse direction, the table for the reactions of HO reveals that three reactions compete:

245 HO + N = H + NO

273 HO + N = HN + O

277 HO + N + M = HNO + M

It should also be noted that the tables for NO reactions and N atom reactions would yield the same information.

Another use for the listings in Appendix B is to determine the ways of breaking the N≡N bond in N_2. It will be found that 31 reactions of N_2 are listed involving only the primary species. Through further inspection, many of these reactions could be eliminated from consideration, but these 31 reactions provide an initial checklist. (As a matter of interest, there are 55 reactions involving N_2 in the 39 species reaction master list which is given in Appendix C.)

A	1.	CH	+ CHN		= CH2	+ CN		
A	2.	CH	+ CHO		= CH2	+ CO		
A	3.	CH	+ CH2O		= CHO	+ CH2		
A	4.	CH	+ CH2O		= CH3	+ CO		
A	5.	CH	+ CH3		= CH2	+ CH2		
A	6.	CH	+ CH3O		= CHO	+ CH3		
A	7.	CH	+ CH3O		= CH2	+ CH2O		
A	8.	CH	+ CH3O		= CH4	+ CO		
A	9.	CH	+ CH4		= CH2	+ CH3		
A	10.	CH	+ CO2		= CHO	+ CO		
A	11.	CH	+ H	+ M	= CH2		+ M	
A	12.	CH	+ HN		= CHN	+ H		
A	13.	CH	+ HN		= CH2	+ N		
A	14.	CH	+ HN		= CN	+ H2		
A	15.	CH	+ HNO		= CHN	+ HO		
A	16.	CH	+ HNO		= CHO	+ HN		
A	17.	CH	+ HNO		= CH2	+ NO		
A	18.	CH	+ HNO		= CH2O	+ N		
A	19.	CH	+ HNO		= CN	+ H2O		
A	20.	CH	+ HO		= CHO	+ H		
A	21.	CH	+ HO		= CH2	+ O		
A	22.	CH	+ HO	+ M	= CH2O		+ M	
A	23.	CH	+ HO		= CO	+ H2		
A	24.	CH	+ HO2		= CHO	+ HO		
A	25.	CH	+ HO2		= CH2	+ O2		

A 26.	CH	+ HO2		=	CH2O	+ O		
A 27.	CH	+ HO2		=	CO	+ H2O		
A 28.	CH	+ HO2		=	CO2	+ H2		
A 29.	CH	+ H2		=	CH2	+ H		
A 30.	CH	+ H2	+ M	=	CH3		+ M	
A 31.	CH	+ H2O		=	CHO	+ H2		
A 32.	CH	+ H2O		=	CH2	+ HO		
A 33.	CH	+ H2O		=	CH2O	+ H		
A 34.	CH	+ H2O		=	CH3	+ O		
A 35.	CH	+ H2O	+ M	=	CH3O		+ M	
A 36.	CH	+ N	+ M	=	CHN		+ M	
A 37.	CH	+ N		=	CN	+ H		
A 38.	CH	+ NO		=	CHN	+ O		
A 39.	CH	+ NO		=	CHO	+ N		
A 40.	CH	+ NO		=	CN	+ HO		
A 41.	CH	+ NO		=	CO	+ HN		
A 42.	CH	+ NO2		=	CHN	+ O2		
A 43.	CH	+ NO2		=	CHO	+ NO		
A 44.	CH	+ NO2		=	CN	+ HO2		
A 45.	CH	+ NO2		=	CO	+ HNO		
A 46.	CH	+ NO2		=	CO2	+ HN		
A 47.	CH	+ N2		=	CHN	+ N		
A 48.	CH	+ N2		=	CN	+ HN		
A 49.	CH	+ N2O		=	CHN	+ NO		
A 50.	CH	+ N2O		=	CHO	+ N2		

A 51.	CH	+ N2O		=	CN	+ HNO		
A 52.	CH	+ O	+ M	=	CHO		+ M	
A 53.	CH	+ O		=	CO	+ H		
A 54.	CH	+ O2		=	CHO	+ O		
A 55.	CH	+ O2		=	CO	+ HO		
A 56.	CH	+ O2		=	CO2	+ H		
A 57.	CHN		+ M	=	CN	+ H	+ M	
A 58.	CHN	+ CHO		=	CH2O	+ CN		
A 59.	CHN	+ CH2		=	CH3	+ CN		
A 60.	CHN	+ CH2O		=	CH3O	+ CN		
A 61.	CHN	+ CH3		=	CH4	+ CN		
A 62.	CHN	+ CO		=	CHO	+ CN		
A 63.	CHN	+ H		=	CH2	+ N		
A 64.	CHN	+ H		=	CN	+ H2		
A 65.	CHN	+ HN		=	CH2	+ N2		
A 66.	CHN	+ HNO		=	CH2	+ N2O		
A 67.	CHN	+ HNO		=	CH2O	+ N2		
A 68.	CHN	+ HO		=	CHO	+ HN		
A 69.	CHN	+ HO		=	CH2	+ NO		
A 70.	CHN	+ HO		=	CH2O	+ N		
A 71.	CHN	+ HO		=	CN	+ H2O		
A 72.	CHN	+ HO2		=	CHO	+ HNO		
A 73.	CHN	+ HO2		=	CH2	+ NO2		
A 74.	CHN	+ HO2		=	CH2O	+ NO		
A 75.	CHN	+ H2		=	CH2	+ HN		

A 76.	CHN	+ H2			= CH3	+ N		
A 77.	CHN	+ H2O			= CH2	+ HNO		
A 78.	CHN	+ H2O			= CH2O	+ HN		
A 79.	CHN	+ H2O			= CH3	+ NO		
A 80.	CHN	+ H2O			= CH3O	+ N		
A 81.	CHN	+ N			= CN	+ HN		
A 82.	CHN	+ NO			= CHO	+ N2		
A 83.	CHN	+ NO			= CN	+ HNO		
A 84.	CHN	+ NO2			= CHO	+ N2O		
A 85.	CHN	+ O			= CHO	+ N		
A 86.	CHN	+ O			= CN	+ HO		
A 87.	CHN	+ O			= CO	+ HN		
A 88.	CHN	+ O2			= CHO	+ NO		
A 89.	CHN	+ O2			= CN	+ HO2		
A 90.	CHN	+ O2			= CO	+ HNO		
A 91.	CHN	+ O2			= CO2	+ HN		
A 92.	CHO		+ M		= CO	+ H	+ M	
A 93.	CHO	+ CHO			= CH2	+ CO2		
A 94.	CHO	+ CHO			= CH2O	+ CO		
A 95.	CHO	+ CH2			= CH3	+ CO		
A 96.	CHO	+ CH2O			= CH3	+ CO2		
A 97.	CHO	+ CH2O			= CH3O	+ CO		
A 98.	CHO	+ CH3			= CH2	+ CH2O		
A 99.	CHO	+ CH3			= CH4	+ CO		
A100.	CHO	+ CH3O			= CH2O	+ CH2O		

A101. CHO + CH3O = CH4 + CO2

A102. CHO + CH4 = CH2 + CH3O

A103. CHO + CH4 = CH2O + CH3

A104. CHO + H = CH2 + O

A105. CHO + H + M = CH2O + M

A106. CHO + H = CO + H2

A107. CHO + HN = CH2 + NO

A108. CHO + HN = CH2O + N

A109. CHO + HN = CN + H2O

A110. CHO + HNO = CH2 + NO2

A111. CHO + HNO = CH2O + NO

A112. CHO + HO = CH2 + O2

A113. CHO + HO = CH2O + O

A114. CHO + HO = CO + H2O

A115. CHO + HO = CO2 + H2

A116. CHO + HO2 = CH2O + O2

A117. CHO + HO2 = CO2 + H2O

A118. CHO + H2 = CH2 + HO

A119. CHO + H2 = CH2O + H

A120. CHO + H2 = CH3 + O

A121. CHO + H2 + M = CH3O + M

A122. CHO + H2O = CH2 + HO2

A123. CHO + H2O = CH2O + HO

A124. CHO + H2O = CH3 + O2

A125. CHO + H2O = CH3O + O

A126.	CHO	+ N		= CN	+ HO			
A127.	CHO	+ N		= CO	+ HN			
A128.	CHO	+ NO		= CN	+ HO2			
A129.	CHO	+ NO		= CO	+ HNO			
A130.	CHO	+ NO		= CO2	+ HN			
A131.	CHO	+ NO2		= CO2	+ HNO			
A132.	CHO	+ N2		= CN	+ HNO			
A133.	CHO	+ O		= CO	+ HO			
A134.	CHO	+ O		= CO2	+ H			
A135.	CHO	+ O2		= CO	+ HO2			
A136.	CHO	+ O2		= CO2	+ HO			
A137.	CH2	+ CH2O		= CH4	+ CO			
A138.	CH2	+ CH3O		= CH2O	+ CH3			
A139.	CH2	+ CH4		= CH3	+ CH3			
A140.	CH2	+ CO2		= CH2O	+ CO			
A141.	CH2	+ H	+ M	= CH3		+ M		
A142.	CH2	+ HN		= CH3	+ N			
A143.	CH2	+ HNO		= CH2O	+ HN			
A144.	CH2	+ HNO		= CH3	+ NO			
A145.	CH2	+ HNO		= CH3O	+ N			
A146.	CH2	+ HO		= CH2O	+ H			
A147.	CH2	+ HO		= CH3	+ O			
A148.	CH2	+ HO	+ M	= CH3O		+ M		
A149.	CH2	+ HO2		= CH2O	+ HO			
A150.	CH2	+ HO2		= CH3	+ O2			

A151. CH2 + HO2 = CH3O + O

A152. CH2 + H2 = CH3 + H

A153. CH2 + H2 + M = CH4 + M

A154. CH2 + H2O = CH2O + H2

A155. CH2 + H2O = CH3 + HO

A156. CH2 + H2O = CH3O + H

A157. CH2 + H2O = CH4 + O

A158. CH2 + N = CN + H2

A159. CH2 + NO = CH2O + N

A160. CH2 + NO = CN + H2O

A161. CH2 + NO2 = CH2O + NO

A162. CH2 + N2O = CH2O + N2

A163. CH2 + O + M = CH2O + M

A164. CH2 + O = CO + H2

A165. CH2 + O2 = CH2O + O

A166. CH2 + O2 = CO + H2O

A167. CH2 + O2 = CO2 + H2

A168. CH2O + M = CO + H2 + M

A169. CH2O + CH2O = CH4 + CO2

A170. CH2O + CH4 = CH3 + CH3O

A171. CH2O + H = CH3 + O

A172. CH2O + H + M = CH3O + M

A173. CH2O + HN = CH3 + NO

A174. CH2O + HN = CH3O + N

A175. CH2O + HNO = CH3 + NO2

A176. CH2O + HNO = CH3O + NO

A177. CH2O + HO = CH3 + O2

A178. CH2O + HO = CH3O + O

A179. CH2O + HO2 = CH3O + O2

A180. CH2O + H2 = CH3 + HO

A181. CH2O + H2 = CH3O + H

A182. CH2O + H2 = CH4 + O

A183. CH2O + H2O = CH3 + HO2

A184. CH2O + H2O = CH3O + HO

A185. CH2O + H2O = CH4 + O2

A186. CH2O + N = CN + H2O

A187. CH2O + O = CO + H2O

A188. CH2O + O = CO2 + H2

A189. CH2O + O2 = CO2 + H2O

A190. CH3 + CO2 = CH3O + CO

A191. CH3 + H + M = CH4 + M

A192. CH3 + HN = CH4 + N

A193. CH3 + HNO = CH3O + HN

A194. CH3 + HNO = CH4 + NO

A195. CH3 + HO = CH3O + H

A196. CH3 + HO = CH4 + O

A197. CH3 + HO2 = CH3O + HO

A198. CH3 + HO2 = CH4 + O2

A199. CH3 + H2 = CH4 + H

A200. CH3 + H2O = CH3O + H2

A201. CH3 + H2O = CH4 + HO

A202. CH3 + NO = CH3O + N

A203. CH3 + NO2 = CH3O + NO

A204. CH3 + N2O = CH3O + N2

A205. CH3 + O + M = CH3O + M

A206. CH3 + O2 = CH3O + O

A207. CH3O + H = CH4 + O

A208. CH3O + HN = CH4 + NO

A209. CH3O + HNO = CH4 + NO2

A210. CH3O + HO = CH4 + O2

A211. CH3O + H2 = CH4 + HO

A212. CH3O + H2O = CH4 + HO2

A213. CN + HO = CO + HN

A214. CN + HO2 = CO + HNO

A215. CN + HO2 = CO2 + HN

A216. CN + NO = CO + N2

A217. CN + NO2 = CO + N2O

A218. CN + NO2 = CO2 + N2

A219. CN + O = CO + N

A220. CN + O2 = CO + NO

A221. CN + O2 = CO2 + N

A222. CO + HNO = CO2 + HN

A223. CO + HO = CO2 + H

A224. CO + HO2 = CO2 + HO

A225. CO + H2O = CO2 + H2

A226.	CO	+	NO		=	CO2	+	N
A227.	CO	+	NO2		=	CO2	+	NO
A228.	CO	+	N2O		=	CO2	+	N2
A229.	CO	+	O	+ M	=	CO2		+ M
A230.	CO	+	O2		=	CO2	+	O
A231.	H	+	H	+ M	=	H2		+ M
A232.	H	+	HN		=	H2	+	N
A233.	H	+	HNO		=	HN	+	HO
A234.	H	+	HNO		=	H2	+	NO
A235.	H	+	HNO		=	H2O	+	N
A236.	H	+	HO		=	H2	+	O
A237.	H	+	HO	+ M	=	H2O		+ M
A238.	H	+	HO2		=	HO	+	HO
A239.	H	+	HO2		=	H2	+	O2
A240.	H	+	HO2		=	H2O	+	O
A241.	H	+	H2O		=	HO	+	H2
A242.	H	+	N	+ M	=	HN		+ M
A243.	H	+	NO		=	HN	+	O
A244.	H	+	NO	+ M	=	HNO		+ M
A245.	H	+	NO		=	HO	+	N
A246.	H	+	NO2		=	HN	+	O2
A247.	H	+	NO2		=	HNO	+	O
A248.	H	+	NO2		=	HO	+	NO
A249.	H	+	NO2		=	HO2	+	N
A250.	H	+	N2		=	HN	+	N

A251.	H	+	N2O		=	HN	+	NO	
A252.	H	+	N2O		=	HNO	+	N	
A253.	H	+	N2O		=	HO	+	N2	
A254.	H	+	O	+ M	=	HO			+ M
A255.	H	+	O2		=	HO	+	O	
A256.	H	+	O2	+ M	=	HO2			+ M
A257.	HN	+	HN		=	H2	+	N2	
A258.	HN	+	HNO		=	H2	+	N2O	
A259.	HN	+	HNO		=	H2O	+	N2	
A260.	HN	+	HO		=	H2	+	NO	
A261.	HN	+	HO		=	H2O	+	N	
A262.	HN	+	HO2		=	HNO	+	HO	
A263.	HN	+	HO2		=	H2	+	NO2	
A264.	HN	+	HO2		=	H2O	+	NO	
A265.	HN	+	H2O		=	HNO	+	H2	
A266.	HN	+	NO		=	HNO	+	N	
A267.	HN	+	NO		=	HO	+	N2	
A268.	HN	+	NO2		=	HNO	+	NO	
A269.	HN	+	NO2		=	HO	+	N2O	
A270.	HN	+	NO2		=	HO2	+	N2	
A271.	HN	+	N2O		=	HNO	+	N2	
A272.	HN	+	O	+ M	=	HNO			+ M
A273.	HN	+	O		=	HO	+	N	
A274.	HN	+	O2		=	HNO	+	O	
A275.	HN	+	O2		=	HO	+	NO	

A276.	HN	+	O2			=	HO2	+	N
A277.	HNO			+	M	=	HO	+	N + M
A278.	HNO	+	HNO			=	H2O	+	N2O
A279.	HNO	+	HO			=	H2	+	NO2
A280.	HNO	+	HO			=	H2O	+	NO
A281.	HNO	+	HO2			=	H2O	+	NO2
A282.	HNO	+	N			=	HO	+	N2
A283.	HNO	+	NO			=	HO	+	N2O
A284.	HNO	+	NO			=	HO2	+	N2
A285.	HNO	+	NO2			=	HO2	+	N2O
A286.	HNO	+	O			=	HO	+	NO
A287.	HNO	+	O			=	HO2	+	N
A288.	HNO	+	O2			=	HO	+	NO2
A289.	HNO	+	O2			=	HO2	+	NO
A290.	HO	+	HO			=	H2	+	O2
A291.	HO	+	HO			=	H2O	+	O
A292.	HO	+	HO2			=	H2O	+	O2
A293.	HO	+	H2O			=	HO2	+	H2
A294.	HO	+	NO			=	HO2	+	N
A295.	HO	+	NO2			=	HO2	+	NO
A296.	HO	+	N2O			=	HO2	+	N2
A297.	HO	+	O	+	M	=	HO2	+	M
A298.	HO	+	O2			=	HO2	+	O
A299.	H2	+	NO			=	H2O	+	N
A300.	H2	+	NO2			=	H2O	+	NO

A301.	H2	+	N2O		=	H2O	+	N2
A302.	H2	+	O	+ M	=	H2O	+	M
A303.	H2	+	O2		=	H2O	+	O
A304.	N	+	N	+ M	=	N2	+	M
A305.	N	+	NO		=	N2	+	O
A306.	N	+	NO	+ M	=	N2O	+	M
A307.	N	+	NO2		=	NO	+	NO
A308.	N	+	NO2		=	N2	+	O2
A309.	N	+	NO2		=	N2O	+	O
A310.	N	+	N2O		=	NO	+	N2
A311.	N	+	O	+ M	=	NO	+	M
A312.	N	+	O2		=	NO	+	O
A313.	N	+	O2	+ M	=	NO2	+	M
A314.	NO	+	NO		=	N2	+	O2
A315.	NO	+	NO		=	N2O	+	O
A316.	NO	+	NO2		=	N2O	+	O2
A317.	NO	+	N2O		=	NO2	+	N2
A318.	NO	+	O	+ M	=	NO2	+	M
A319.	NO	+	O2		=	NO2	+	O
A320.	N2	+	O	+ M	=	N2O	+	M
A321.	N2	+	O2		=	N2O	+	O
A322.	O	+	O	+ M	=	O2	+	M

4. TABLES OF THERMOCHEMICAL DATA

Thermochemical tables are presented for each of the 322 reactions listed in Section 3. The filing order is the same as that described in Section 3, with alphanumeric sorting according to the earliest species in the sequence. Each reaction listed represents both the forward and the reverse reaction with the reverse reaction having parameters with opposite mathematical sign.

The tables give ΔH_r, ΔCp_r, ΔS_r and Log K_{c_r} as a function of temperature from 298 to 6000K as constructed from the information in the JANNAF tables (referenced in Section 3). In addition, the values of Log K_c from 1000-3000K have been fit to an expression compatible with the form of the kinetic parameters. The expression is

$$K_c = 10^{\log A_T B_e - C/RT}$$

or

$$\log K_c = \log A + B \log T - C/(2.303)(1.987 \times 10^{-3})T$$

where C is constrained to be ΔH_r at 298K. The fit for A and B was thus obtained from a least squares fit of a straight line.

$$\log K_c + \Delta H_{r_{298}}/(2.303)(1.987 \times 10^{-3})T = A + B \log T$$

The standard error of estimate given is the standard error of log K_c from 1000-3000.

X 1. CH + CHN = CH2 + CN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	22.050	-0.305	2.797	-15.552
500	21.918	-0.844	2.472	-9.040
1000	21.408	-0.900	1.862	-4.288
1500	20.963	-1.185	1.448	-2.738
2000	20.319	-1.331	1.080	-1.984
2500	19.687	-1.155	0.795	-1.547
3000	19.195	-0.809	0.616	-1.263
3500	18.876	-0.475	0.516	-1.067
4000	18.702	-0.239	0.470	-0.920
4500	18.617	-0.120	0.450	-0.807
5000	18.566	-0.098	0.439	-0.716
5500	18.507	-0.145	0.429	-0.642
6000	18.414	-0.231	0.413	-0.581

PARAMETERS FOR KC

LOG A	B	C
1.720	-0.39	22.050

STD ERROR OF ESTIMATE = 0.007

X 2. CH + CHO = CH2 + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-85.067	-0.007	-3.848	61.517
500	-84.805	-0.161	-3.881	36.219
1000	-85.217	-0.445	-4.105	17.710
1500	-85.285	-0.650	-4.321	11.481
2000	-85.555	-0.851	-4.537	8.357
2500	-85.913	-0.953	-4.741	6.493
3000	-86.298	-0.974	-4.917	5.212
3500	-86.671	-0.967	-5.067	4.303
4000	-87.031	-0.963	-5.196	3.619
4500	-87.351	-0.980	-5.309	3.081
5000	-87.675	-1.018	-5.415	2.648
5500	-88.003	-1.082	-5.514	2.291
6000	-88.346	-1.166	-5.612	1.991

PARAMETERS FOR KC

LOG A	B	C
-0.292	-0.19	-85.067

STD ERROR OF ESTIMATE = 0.010

X 3. CH + CH2O = CHO + CH2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-14.700	1.105	4.007	11.649
500	-14.778	0.772	4.523	7.448
1000	-14.562	-0.223	4.721	4.198
1500	-14.915	-0.912	4.493	3.155
2000	-15.606	-1.370	4.163	2.616
2500	-16.447	-1.574	3.829	2.256
3000	-17.346	-1.608	3.539	2.037
3500	-18.256	-1.573	3.292	1.858
4000	-19.152	-1.522	3.087	1.721
4500	-20.066	-1.484	2.910	1.610
5000	-20.978	-1.470	2.754	1.518
5500	-21.912	-1.481	2.613	1.443
6000	-22.876	-1.505	2.485	1.377

PARAMETERS FOR KC

LOG A	B	C
1.164	-0.05	-14.700

STD ERROR OF ESTIMATE = 0.022

X 4. CH + CH2O = CH3 + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-107.647	0.780	-2.387	78.386
500	-107.512	0.449	-2.033	48.549
1000	-107.579	-0.579	-2.085	23.054
1500	-107.997	-1.042	-2.417	15.206
2000	-108.582	-1.265	-2.752	11.263
2500	-109.235	-1.329	-3.045	8.883
3000	-109.896	-1.303	-3.285	7.287
3500	-110.533	-1.248	-3.482	6.139
4000	-111.144	-1.194	-3.644	5.275
4500	-111.730	-1.159	-3.782	4.599
5000	-112.305	-1.146	-3.904	4.054
5500	-112.881	-1.157	-4.015	3.608
6000	-113.464	-1.182	-4.115	3.234

PARAMETERS FOR KC

LOG A	B	C
0.046	-0.16	-107.647

STD ERROR OF ESTIMATE = 0.014

X 5. CH + CH3 = CH2 + CH2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	7.880	0.318	2.546	-5.220
500	7.929	0.162	2.675	-2.882
1000	7.800	-0.089	2.701	-1.146
1500	7.797	-0.520	2.589	-0.570
2000	7.421	-0.956	2.378	-0.290
2500	6.875	-1.198	2.133	-0.134
3000	6.252	-1.279	1.907	-0.038
3500	5.606	-1.292	1.707	0.022
4000	4.961	-1.291	1.535	0.065
4500	4.313	-1.305	1.383	0.092
5000	3.652	-1.342	1.243	0.112
5500	2.966	-1.406	1.114	0.126
6000	2.242	-1.489	0.988	0.134

PARAMETERS FOR KC

LOG A	B	C
0.825	-0.08	7.880

STD ERROR OF ESTIMATE = 0.010

X 6. CH + CH3O = CHO + CH3

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-101.180	1.582	3.073	74.838
500	-101.209	0.789	3.726	45.053
1000	-101.052	-0.648	3.760	22.907
1500	-101.713	-1.412	3.342	15.549
2000	-102.651	-1.849	2.868	11.844
2500	-103.726	-2.032	2.431	9.580
3000	-104.852	-2.062	2.058	8.089
3500	-105.989	-2.030	1.741	6.998
4000	-107.115	-1.984	1.475	6.174
4500	-108.261	-1.948	1.243	5.529
5000	-109.404	-1.932	1.038	5.009
5500	-110.568	-1.938	0.853	4.593
6000	-111.758	-1.954	0.685	4.330

PARAMETERS FOR KC

LOG A	B	C
1.328	-0.17	-101.180

STD ERROR OF ESTIMATE = 0.025

X 7. CH + CH3O = CH2 + CH2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-78.600	0.795	1.612	57.969
500	-78.502	0.179	1.878	34.723
1000	-78.690	-0.514	1.740	17.563
1500	-79.001	-1.020	1.438	11.824
2000	-79.624	-1.435	1.083	8.938
2500	-80.404	-1.656	0.735	7.190
3000	-81.254	-1.733	0.426	6.014
3500	-82.127	-1.749	0.156	5.162
4000	-83.002	-1.753	-0.077	4.518
4500	-83.882	-1.769	-0.284	4.011
5000	-84.774	-1.804	-0.473	3.603
5500	-85.690	-1.863	-0.646	3.276
6000	-86.640	-1.938	-0.812	3.087

PARAMETERS FOR KC

LOG A	B	C
0.988	-0.19	-78.600

STD ERROR OF ESTIMATE = 0.014

X 8. CH + CH3O = CH4 + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-189.312	-0.452	-5.269	137.619
500	-189.477	-1.086	-5.677	81.579
1000	-190.062	-1.132	-6.489	40.119
1500	-190.631	-1.180	-6.949	26.255
2000	-191.251	-1.291	-7.305	19.302
2500	-191.908	-1.324	-7.600	15.115
3000	-192.564	-1.290	-7.838	12.315
3500	-193.194	-1.232	-8.033	10.307
4000	-193.797	-1.180	-8.193	8.797
4500	-194.377	-1.146	-8.330	7.619
5000	-194.945	-1.135	-8.451	6.674
5500	-195.516	-1.148	-8.559	5.911
6000	-196.096	-1.177	-8.660	5.360

PARAMETERS FOR KC

LOG A	B	C
0.121	-0.45	-189.312

STD ERROR OF ESTIMATE = 0.005

X 9. CH + CH4 = CH2 + CH3

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	3.065	2.027	4.494	-1.264
500	3.463	1.714	5.522	-0.307
1000	3.793	0.039	6.144	0.498
1500	3.633	-0.882	5.970	0.775
2000	3.045	-1.409	5.636	0.899
2500	2.269	-1.661	5.290	0.958
3000	1.414	-1.746	4.979	0.986
3500	0.534	-1.765	4.707	0.994
4000	-0.349	-1.767	4.472	0.996
4500	-1.235	-1.782	4.264	0.991
5000	-2.134	-1.815	4.074	0.983
5500	-3.055	-1.872	3.898	0.973
6000	-4.008	-1.943	3.733	0.961

PARAMETERS FOR KC

LOG A	B	C
0.914	0.09	3.065

STD ERROR OF ESTIMATE = 0.022

X 10. CH + CO2 = CHO + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-65.363	-0.612	6.086	49.240
500	-65.856	-1.315	5.547	29.999
1000	-66.351	-1.347	4.619	15.511
1500	-67.233	-1.687	4.017	10.673
2000	-68.276	-2.022	3.482	8.223
2500	-69.431	-2.188	3.008	6.708
3000	-70.638	-2.233	2.606	5.716
3500	-71.866	-2.225	2.261	4.981
4000	-73.098	-2.211	1.966	4.423
4500	-74.365	-2.209	1.706	3.984
5000	-75.649	-2.230	1.471	3.628
5500	-76.976	-2.297	1.255	3.334
6000	-78.363	-2.382	1.053	3.086

PARAMETERS FOR KC

LOG A	B	C
2.986	-0.58	-65.363

STD ERROR OF ESTIMATE = 0.016

X 11. CH + H + M = CH2 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-101.750	-3.671	-24.789	73.553
500	-102.421	-2.993	-26.522	43.583
1000	-103.674	-1.859	-28.207	21.391
1500	-104.407	-1.451	-28.865	13.993
2000	-105.107	-1.363	-29.267	10.304
2500	-105.772	-1.295	-29.566	8.097
3000	-106.395	-1.197	-29.792	6.631
3500	-106.970	-1.101	-29.970	5.587
4000	-107.501	-1.028	-30.112	4.808
4500	-108.003	-0.990	-30.230	4.205
5000	-108.496	-0.986	-30.334	3.726
5500	-108.996	-1.015	-30.429	3.335
6000	-109.516	-1.067	-30.519	3.011

PARAMETERS FOR KC

LOG A	B	C
-1.266	0.13	-101.750

STD ERROR OF ESTIMATE = 0.005

X 12. CH + HN = CHN + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-147.612	-0.400	-11.410	105.711
500	-147.543	0.921	-11.263	62.031
1000	-146.790	1.719	-10.251	29.841
1500	-146.000	1.393	-9.605	19.173
2000	-145.397	1.037	-9.257	13.866
2500	-144.936	0.838	-9.049	10.692
3000	-144.541	0.752	-8.906	8.584
3500	-144.176	0.711	-8.793	7.080
4000	-143.829	0.674	-8.699	5.958
4500	-143.504	0.619	-8.623	5.085
5000	-143.215	0.538	-8.563	4.388
5500	-142.970	0.426	-8.516	3.820
6000	-142.792	0.287	-8.485	3.347

PARAMETERS FOR KC

LOG A	B	C
-4.017	0.53	-147.612

STD ERROR OF ESTIMATE = 0.003

X 13. CH + HN = CH2 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-26.697	-0.701	-4.076	18.684
500	-26.770	-0.051	-4.277	10.770
1000	-26.650	0.606	-4.039	4.928
1500	-26.306	0.421	-3.815	3.000
2000	-26.177	0.100	-3.739	2.045
2500	-26.181	-0.096	-3.741	1.473
3000	-26.246	-0.159	-3.765	1.091
3500	-26.321	-0.135	-3.790	0.816
4000	-26.366	-0.055	-3.802	0.612
4500	-26.359	0.057	-3.802	0.451
5000	-26.291	0.188	-3.790	0.323
5500	-26.153	0.317	-3.766	0.219
6000	-25.949	0.437	-3.733	0.133

PARAMETERS FOR KC

LOG A	B	C
-1.252	0.11	-26.697

STD ERROR OF ESTIMATE = 0.001

X 14. CH + HN = CN + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-128.012	-0.078	-7.400	92.218
500	-128.004	0.127	-7.385	54.337
1000	-127.938	-0.039	-7.288	26.368
1500	-128.104	-0.557	-7.414	17.044
2000	-128.431	-0.672	-7.602	12.373
2500	-128.707	-0.383	-7.727	9.562
3000	-128.787	0.063	-7.757	7.687
3500	-128.642	0.511	-7.713	6.346
4000	-128.292	0.869	-7.619	5.344
4500	-127.792	1.108	-7.503	4.566
5000	-127.203	1.238	-7.379	3.947
5500	-126.567	1.290	-7.257	3.443
6000	-125.922	1.287	-7.145	3.025

PARAMETERS FOR KC

LOG A	B	C
-1.424	-0.06	-128.012

STD ERROR OF ESTIMATE = 0.007

X 15. CH + HNO = CHN + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-124.008	0.486	-4.357	89.947
500	-123.877	0.660	-4.025	53.266
1000	-123.695	0.100	-3.749	26.214
1500	-123.719	-0.155	-3.766	17.202
2000	-123.817	-0.209	-3.822	12.695
2500	-123.906	-0.129	-3.861	9.987
3000	-123.936	0.015	-3.873	8.182
3500	-123.890	0.168	-3.858	6.892
4000	-123.771	0.301	-3.827	5.926
4500	-123.593	0.401	-3.786	5.175
5000	-123.376	0.467	-3.740	4.575
5500	-123.132	0.496	-3.694	4.086
6000	-122.884	0.494	-3.651	3.679

PARAMETERS FOR KC

LOG A	B	C
-1.120	0.07	-124.008

STD ERROR OF ESTIMATE = 0.005

X 16. CH + HNO = CHO + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-66.788	-0.016	0.508	49.063
500	-67.079	-0.118	0.476	29.423
1000	-67.001	-0.281	0.350	14.719
1500	-67.350	-0.598	0.178	9.851
2000	-67.823	-0.826	-0.030	7.405
2500	-68.351	-0.875	-0.223	5.908
3000	-68.873	-0.804	-0.376	4.935
3500	-69.359	-0.688	-0.492	4.223
4000	-69.794	-0.565	-0.576	3.687
4500	-70.213	-0.458	-0.636	3.271
5000	-70.595	-0.374	-0.680	2.937
5500	-70.962	-0.313	-0.713	2.665
6000	-71.325	-0.268	-0.737	2.438

PARAMETERS FOR KC

LOG A	B	C
0.505	-0.12	-66.788

STD ERROR OF ESTIMATE = 0.013

X 17. CH + HNO = CH2 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-51.870	0.151	0.221	38.070
500	-51.865	-0.080	0.241	22.722
1000	-52.022	-0.222	0.126	11.381
1500	-52.111	-0.442	-0.001	7.592
2000	-52.394	-0.674	-0.162	5.690
2500	-52.761	-0.772	-0.326	4.541
3000	-53.148	-0.764	-0.466	3.770
3500	-53.519	-0.717	-0.581	3.214
4000	-53.865	-0.669	-0.674	2.796
4500	-54.191	-0.642	-0.751	2.467
5000	-54.510	-0.638	-0.818	2.203
5500	-54.834	-0.662	-0.879	1.987
6000	-55.176	-0.705	-0.939	1.804

PARAMETERS FOR KC

LOG A	B	C
0.376	-0.10	-51.870

STD ERROR OF ESTIMATE = 0.005

X 18. CH + HNO = CH2O + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-78.785	-1.822	-7.575	56.098
500	-79.071	-0.941	-8.324	32.745
1000	-79.089	0.548	-8.410	15.449
1500	-78.741	0.735	-8.130	9.696
2000	-78.394	0.644	-7.932	6.834
2500	-78.085	0.603	-7.793	5.125
3000	-77.773	0.645	-7.680	3.989
3500	-77.424	0.750	-7.574	3.181
4000	-77.008	0.902	-7.465	2.578
4500	-76.506	1.083	-7.348	2.112
5000	-75.908	1.284	-7.224	1.742
5500	-75.203	1.485	-7.092	1.441
6000	-74.398	1.674	-6.955	1.194

PARAMETERS FOR KC

LOG A	B	C
-1.911	0.04	-78.785

STD ERROR OF ESTIMATE = 0.011

X 19. CH + HNO = CN + H2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-119.598	-0.258	-2.938	87.025
500	-119.709	-0.799	-3.209	51.622
1000	-120.284	-1.390	-3.983	25.417
1500	-121.020	-1.491	-4.579	16.631
2000	-121.712	-1.217	-4.980	12.211
2500	-122.192	-0.670	-5.196	9.546
3000	-122.369	-0.041	-5.261	7.764
3500	-122.246	0.510	-5.225	6.490
4000	-121.882	0.918	-5.128	5.538
4500	-121.353	1.177	-5.004	4.799
5000	-120.726	1.314	-4.872	4.212
5500	-120.051	1.370	-4.743	3.734
6000	-119.365	1.373	-4.624	3.338

PARAMETERS FOR KC

LOG A	B	C
0.716	-0.47	-119.598

STD ERROR OF ESTIMATE = 0.005

X 20. CH + HO = CHO + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-90.392	-0.902	-6.545	64.827
500	-90.745	0.143	-6.762	38.188
1000	-90.096	1.338	-6.152	18.346
1500	-89.631	0.950	-5.661	11.822
2000	-89.403	0.420	-5.465	8.576
2500	-89.381	0.092	-5.411	6.613
3000	-89.478	-0.067	-5.409	5.337
3500	-89.645	-0.145	-5.427	4.411
4000	-89.852	-0.192	-5.448	3.719
4500	-90.124	-0.240	-5.473	3.181
5000	-90.434	-0.303	-5.503	2.750
5500	-90.800	-0.383	-5.535	2.399
6000	-91.233	-0.475	-5.571	2.106

PARAMETERS FOR KC

LOG A	B	C
-2.390	0.32	-90.392

STD ERROR OF ESTIMATE = 0.008

X 21. CH + HO = CH2 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	0.417	-0.633	-2.810	-0.918
500	0.355	0.001	-2.981	-0.806
1000	0.528	0.776	-2.675	-0.716
1500	0.972	0.632	-2.370	-0.659
2000	1.202	0.297	-2.236	-0.620
2500	1.291	0.081	-2.197	-0.592
3000	1.306	-0.005	-2.189	-0.573
3500	1.297	-0.025	-2.193	-0.561
4000	1.285	-0.023	-2.196	-0.550
4500	1.273	-0.028	-2.198	-0.543
5000	1.253	-0.055	-2.203	-0.536
5500	1.213	-0.109	-2.210	-0.531
6000	1.139	-0.187	-2.222	-0.528

PARAMETERS FOR KC

LOG A	B	C
-1.152	0.17	0.417

STD ERROR OF ESTIMATE = 0.001

X 22. CH + HO + M = CH2O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-177.442	-5.678	-35.341	126.731
500	-178.388	-3.622	-37.807	74.323
1000	-179.208	-0.298	-39.080	35.539
1500	-179.123	0.411	-39.019	22.660
2000	-178.904	0.427	-38.895	16.264
2500	-178.706	0.371	-38.806	12.454
3000	-178.527	0.344	-38.740	9.931
3500	-178.359	0.327	-38.689	8.140
4000	-178.201	0.302	-38.647	6.806
4500	-178.061	0.254	-38.613	5.776
5000	-177.952	0.181	-38.591	4.958
5500	-177.884	0.083	-38.577	4.291
6000	-177.873	-0.037	-38.575	3.740

PARAMETERS FOR KC

LOG A	B	C
-4.822	0.51	-177.442

STD ERROR OF ESTIMATE = 0.023

X 23. CH + HO = CO + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-177.909	-0.282	-9.180	128.403
500	-177.929	0.032	-9.237	75.753
1000	-177.869	0.035	-9.156	36.871
1500	-177.983	-0.465	-9.239	23.912
2000	-178.311	-0.809	-9.427	17.424
2500	-178.752	-0.927	-9.625	13.523
3000	-179.217	-0.921	-9.793	10.915
3500	-179.658	-0.837	-9.930	9.047
4000	-180.048	-0.721	-10.034	7.644
4500	-180.380	-0.611	-10.112	6.550
5000	-180.663	-0.523	-10.173	5.673
5500	-180.907	-0.456	-10.219	4.955
6000	-181.123	-0.410	-10.256	4.356

PARAMETERS FOR KC

LOG A	B	C
-1.810	-0.06	-177.909

STD ERROR OF ESTIMATE = 0.009

X 24. CH + HO2 = CHO + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-128.508	0.126	-0.558	94.073
500	-128.796	-0.194	-0.581	56.170
1000	-128.758	-0.331	-0.763	27.973
1500	-129.127	-0.634	-0.951	18.605
2000	-129.620	-0.871	-1.169	13.909
2500	-130.174	-0.934	-1.374	11.060
3000	-130.729	-0.878	-1.540	9.188
3500	-131.256	-0.775	-1.668	7.831
4000	-131.738	-0.664	-1.763	6.812
4500	-132.208	-0.568	-1.836	6.019
5000	-132.648	-0.493	-1.892	5.384
5500	-133.075	-0.437	-1.937	4.865
6000	-133.501	-0.395	-1.972	4.433

PARAMETERS FOR KC

LOG A	B	C
0.320	-0.14	-128.508

STD ERROR OF ESTIMATE = 0.013

X 25. CH + HO2 = CH2 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-54.650	-0.021	-2.776	39.453
500	-54.660	-0.073	-2.799	23.280
1000	-54.726	0.080	-2.800	11.332
1500	-54.649	-0.095	-2.793	7.352
2000	-54.746	-0.261	-2.847	5.360
2500	-54.877	-0.236	-2.907	4.162
3000	-54.960	-0.081	-2.936	3.363
3500	-54.955	0.101	-2.936	2.789
4000	-54.863	0.260	-2.911	2.361
4500	-54.703	0.368	-2.873	2.028
5000	-54.504	0.422	-2.832	1.763
5500	-54.289	0.430	-2.790	1.547
6000	-54.080	0.403	-2.753	1.368

PARAMETERS FOR KC

LOG A	B	C
-0.573	-0.01	-54.650

STD ERROR OF ESTIMATE = 0.002

X 26. CH + HO2 = CH2O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-113.391	-1.612	-7.375	81.506
500	-113.663	-0.965	-8.085	47.916
1000	-113.668	0.668	-8.159	23.059
1500	-113.240	0.910	-7.814	14.791
2000	-112.812	0.796	-7.568	10.673
2500	-112.436	0.721	-7.400	8.212
3000	-112.077	0.725	-7.268	6.578
3500	-111.703	0.773	-7.153	5.412
4000	-111.301	0.835	-7.046	4.541
4500	-110.869	0.888	-6.944	3.866
5000	-110.417	0.922	-6.849	3.330
5500	-109.950	0.935	-6.760	2.891
6000	-109.486	0.923	-6.679	2.528

PARAMETERS FOR KC

LOG A	B	C
-1.996	0.08	-113.391

STD ERROR OF ESTIMATE = 0.012

X 27. CH + HO2 = CO + H2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-231.215	-0.320	-5.784	168.218
500	-231.351	-0.970	-6.118	99.785
1000	-231.972	-1.366	-6.964	49.174
1500	-232.676	-1.435	-7.533	32.253
2000	-233.389	-1.399	-7.944	23.766
2500	-234.060	-1.273	-8.245	18.659
3000	-234.655	-1.099	-8.461	15.245
3500	-235.159	-0.925	-8.618	12.799
4000	-235.582	-0.771	-8.730	10.963
4500	-235.936	-0.652	-8.813	9.531
5000	-236.239	-0.566	-8.878	8.385
5500	-236.504	-0.500	-8.929	7.446
6000	-236.742	-0.451	-8.970	6.664

PARAMETERS FOR KC

LOG A	B	C
0.144	-0.50	-231.215

STD ERROR OF ESTIMATE = 0.006

X 28. CH + HO2 = CO2 + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-241.054	0.456	-15.824	173.236
500	-240.869	1.153	-15.365	101.924
1000	-240.276	1.051	-14.538	49.333
1500	-239.877	0.588	-14.207	31.844
2000	-239.655	0.342	-14.078	23.110
2500	-239.495	0.327	-14.007	17.875
3000	-239.308	0.434	-13.939	14.387
3500	-239.048	0.613	-13.859	11.897
4000	-238.688	0.826	-13.763	10.033
4500	-238.223	1.030	-13.654	8.585
5000	-237.662	1.214	-13.538	7.429
5500	-237.006	1.404	-13.411	6.486
6000	-236.261	1.577	-13.281	5.703

PARAMETERS FOR KC

LOG A	B	C
-4.476	0.37	-241.054

STD ERROR OF ESTIMATE = 0.004

X 29. CH + H2 = CH2 + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	2.450	-0.627	-1.213	-2.059
500	2.379	-0.050	-1.406	-1.346
1000	2.556	0.858	-1.101	-0.815
1500	3.067	0.765	-0.743	-0.609
2000	3.353	0.378	-0.575	-0.491
2500	3.458	0.066	-0.527	-0.417
3000	3.441	-0.120	-0.533	-0.366
3500	3.342	-0.275	-0.564	-0.333
4000	3.165	-0.434	-0.610	-0.306
4500	2.905	-0.609	-0.670	-0.288
5000	2.554	-0.798	-0.745	-0.275
5500	2.104	-1.009	-0.830	-0.265
6000	1.544	-1.231	-0.927	-0.259

PARAMETERS FOR KC

LOG A	B	C
-0.872	0.19	2.450

STD ERROR OF ESTIMATE = 0.003

X 30. CH + H2 + M = CH3 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-107.180	-4.616	-28.548	76.714
500	-107.971	-3.205	-30.603	45.119
1000	-108.918	-0.912	-32.009	21.722
1500	-109.137	-0.166	-32.197	13.954
2000	-109.175	-0.029	-32.220	10.103
2500	-109.189	-0.031	-32.226	7.814
3000	-109.206	-0.038	-32.232	6.303
3500	-109.234	-0.084	-32.241	5.232
4000	-109.297	-0.171	-32.257	4.437
4500	-109.411	-0.294	-32.283	3.825
5000	-109.594	-0.442	-32.322	3.339
5500	-109.858	-0.618	-32.373	2.944
6000	-110.214	-0.809	-32.434	2.618

PARAMETERS FOR KC

LOG A	B	C
-2.964	0.41	-107.180

STD ERROR OF ESTIMATE = 0.018

X 31. CH + H2O = CHO + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-75.202	0.164	-3.954	54.258
500	-75.374	0.808	-3.700	32.138
1000	-74.655	1.070	-2.955	15.670
1500	-74.434	0.336	-2.657	10.264
2000	-74.542	-0.281	-2.652	7.567
2500	-74.866	-0.588	-2.754	5.924
3000	-75.291	-0.700	-2.872	4.858
3500	-75.755	-0.687	-2.980	4.079
4000	-76.204	-0.614	-3.067	3.493
4500	-76.652	-0.527	-3.135	3.038
5000	-77.072	-0.450	-3.187	2.672
5500	-77.478	-0.393	-3.227	2.374
6000	-77.882	-0.354	-3.258	2.125

PARAMETERS FOR KC

LOG A	B	C
-1.634	0.29	-75.202

STD ERROR OF ESTIMATE = 0.014

X 32. CH + H2O = CH2 + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	17.640	0.439	1.378	-12.628
500	17.750	0.615	1.656	-7.396
1000	17.997	0.590	2.096	-3.491
1500	18.264	0.151	2.261	-2.167
2000	18.214	-0.323	2.238	-1.500
2500	17.973	-0.614	2.130	-1.106
3000	17.628	-0.753	2.004	-0.845
3500	17.232	-0.817	1.883	-0.665
4000	16.813	-0.856	1.771	-0.532
4500	16.377	-0.896	1.668	-0.431
5000	15.916	-0.945	1.571	-0.353
5500	15.426	-1.019	1.478	-0.290
6000	14.895	-1.110	1.386	-0.240

PARAMETERS FOR KC

LOG A	B	C
-0.116	0.16	17.640

STD ERROR OF ESTIMATE = 0.007

X 33. CH + H2O = CH2O + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-58.052	-1.568	-9.174	40.550
500	-58.217	-0.014	-9.629	23.344
1000	-57.537	2.151	-8.777	10.657
1500	-56.452	2.013	-7.893	6.500
2000	-55.583	1.467	-7.390	4.460
2500	-54.961	1.052	-7.110	3.251
3000	-54.504	0.788	-6.944	2.455
3500	-54.157	0.611	-6.836	1.888
4000	-53.887	0.474	-6.764	1.466
4500	-53.681	0.348	-6.715	1.140
5000	-53.540	0.222	-6.686	0.879
5500	-53.462	0.079	-6.670	0.666
6000	-53.462	-0.080	-6.670	0.489

PARAMETERS FOR KC

LOG A	B	C
-3.672	0.54	-58.052

STD ERROR OF ESTIMATE = 0.011

X 34. CH + H2O = CH3 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	10.177	-0.512	-3.978	-8.326
500	10.176	0.454	-4.000	-5.320
1000	10.725	1.455	-3.280	-3.061
1500	11.439	1.303	-2.698	-2.256
2000	11.995	0.930	-2.376	-1.830
2500	12.389	0.665	-2.20u	-1.564
3000	12.682	0.521	-2.092	-1.380
3500	12.923	0.450	-2.017	-1.248
4000	13.137	0.412	-1.960	-1.147
4500	13.337	0.381	-1.913	-1.066
5000	13.517	0.342	-1.875	-1.001
5500	13.673	0.278	-1.846	-0.947
6000	13.792	0.192	-1.824	-0.902

PARAMETERS FOR KC

LOG A	B	C
-2.093	0.41	10.177

STD ERROR OF ESTIMATE = 0.004

X 35. CH + H2O + M = CH3O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-81.202	-6.034	-35.575	56.134
500	-82.136	-3.186	-38.029	32.204
1000	-82.521	0.806	-38.724	14.485
1500	-81.858	1.582	-38.196	8.669
2000	-81.06b	1.539	-37.740	5.826
2500	-80.329	1.413	-37.411	4.158
3000	-79.645	1.324	-37.162	3.072
3500	-79.000	1.259	-36.962	2.313
4000	-78.386	1.199	-36.799	1.756
4500	-77.802	1.127	-36.661	1.334
5000	-77.262	1.040	-36.547	1.002
5500	-76.768	0.927	-36.453	0.725
6000	-76.338	0.791	-36.377	0.413

PARAMETERS FOR KC

LOG A	B	C
-5.927	0.87	-81.202

STD ERROR OF ESTIMATE = 0.030

X 36. CH + N + M = CHN + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-222.665	-3.370	-32.123	160.580
500	-223.194	-2.021	-33.508	94.844
1000	-223.814	-0.746	-34.419	46.304
1500	-224.101	-0.479	-34.655	30.166
2000	-224.327	-0.426	-34.785	22.125
2500	-224.527	-0.361	-34.874	17.316
3000	-224.690	-0.286	-34.933	14.124
3500	-224.825	-0.255	-34.973	11.851
4000	-224.964	-0.299	-35.009	10.154
4500	-225.148	-0.428	-35.051	8.839
5000	-225.420	-0.636	-35.107	7.791
5500	-225.813	-0.906	-35.179	6.936
6000	-226.359	-1.217	-35.271	6.225

PARAMETERS FOR KC

LOG A	B	C
-4.031	0.55	-222.665

STD ERROR OF ESTIMATE = 0.007

X 37. CH + N = CN + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-98.865	-0.004	-4.537	71.475
500	-98.855	0.128	-4.514	42.221
1000	-98.732	0.213	-4.350	20.625
1500	-98.731	-0.213	-4.342	13.435
2000	-98.901	-0.394	-4.438	9.837
2500	-99.068	-0.221	-4.513	7.672
3000	-99.100	0.102	-4.525	6.230
3500	-98.979	0.371	-4.487	5.197
4000	-98.761	0.490	-4.427	4.426
4500	-98.528	0.442	-4.371	3.827
5000	-98.358	0.252	-4.334	3.349
5500	-98.310	-0.036	-4.321	2.959
6000	-98.429	-0.381	-4.339	2.633

PARAMETERS FOR KC

LOG A	B	C
-1.044	0.02	-98.865

STD ERROR OF ESTIMATE = 0.005

X 38. CH + NO = CHN + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-71.721	-0.298	-7.388	50.959
500	-71.657	0.741	-7.247	29.738
1000	-71.145	1.098	-6.550	14.117
1500	-70.636	0.919	-6.135	8.951
2000	-70.221	0.762	-5.896	6.385
2500	-69.854	0.724	-5.732	4.854
3000	-69.482	0.774	-5.596	3.839
3500	-69.074	0.860	-5.470	3.117
4000	-68.621	0.947	-5.349	2.580
4500	-68.129	1.015	-5.233	2.165
5000	-67.613	1.050	-5.125	1.836
5500	-67.085	1.049	-5.025	1.568
6000	-66.569	1.012	-4.934	1.347

PARAMETERS FOR KC

LOG A	B	C
-2.649	0.36	-71.721

STD ERROR OF ESTIMATE = 0.002

X 39. CH + NO = CHO + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-41.615	-0.868	-3.789	29.677
500	-41.984	-0.089	-4.042	17.471
1000	-41.629	0.547	-3.815	8.266
1500	-41.545	0.265	-3.636	5.259
2000	-41.606	-0.052	-3.607	3.760
2500	-41.771	-0.199	-3.638	2.840
3000	-41.971	-0.199	-3.675	2.256
3500	-42.161	-0.106	-3.701	1.825
4000	-42.285	0.049	-3.704	1.503
4500	-42.381	0.241	-3.687	1.255
5000	-42.376	0.452	-3.652	1.057
5500	-42.281	0.666	-3.600	0.897
6000	-42.098	0.874	-3.531	0.767

PARAMETERS FOR KC

LOG A	B	C
-1.123	0.09	-41.615

STD ERROR OF ESTIMATE = 0.008

X 40. CH + NO = CN + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-50.088	0.030	-1.781	36.325
500	-50.094	-0.104	-1.794	21.504
1000	-50.265	-0.578	-2.013	10.545
1500	-50.645	-0.898	-2.317	6.872
2000	-51.104	-0.866	-2.580	5.021
2500	-51.458	-0.512	-2.740	3.899
3000	-51.593	-0.030	-2.791	3.149
3500	-51.495	0.410	-2.761	2.611
4000	-51.204	0.731	-2.683	2.210
4500	-50.785	0.923	-2.585	1.901
5000	-50.300	1.007	-2.483	1.656
5500	-49.791	1.013	-2.386	1.457
6000	-49.294	0.968	-2.299	1.294

PARAMETERS FOR KC

LOG A	B	C
0.223	-0.20	-50.088

STD ERROR OF ESTIMATE = 0.006

X 41. CH + NO = CO + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-99.985	-0.174	-3.561	72.510
500	-100.019	-0.199	-3.646	42.920
1000	-100.196	-0.504	-3.881	21.048
1500	-100.524	-0.806	-4.142	13.740
2000	-100.984	-1.003	-4.405	10.072
2500	-101.503	-1.056	-4.638	7.860
3000	-102.023	-1.014	-4.827	6.377
3500	-102.511	-0.938	-4.978	5.312
4000	-102.960	-0.859	-5.098	4.510
4500	-103.373	-0.796	-5.194	3.885
5000	-103.760	-0.754	-5.277	3.382
5500	-104.131	-0.733	-5.348	2.969
6000	-104.495	-0.729	-5.410	2.625

PARAMETERS FOR KC

LOG A	B	C
-0.163	-0.21	-99.985

STD ERROR OF ESTIMATE = 0.008

X 42. CH + NO2 = CHN + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-117.610	-0.219	-3.848	85.369
500	-117.617	0.051	-3.871	50.564
1000	-117.576	0.090	-3.815	24.862
1500	-117.545	0.034	-3.790	16.297
2000	-117.523	0.082	-3.779	12.016
2500	-117.438	0.282	-3.741	9.448
3000	-117.229	0.558	-3.665	7.739
3500	-116.882	0.825	-3.559	6.520
4000	-116.412	1.045	-3.434	5.610
4500	-115.847	1.200	-3.301	4.905
5000	-115.223	1.288	-3.170	4.343
5500	-114.569	1.317	-3.045	3.887
6000	-113.914	1.297	-2.931	3.509

PARAMETERS FOR KC

LOG A	B	C
-0.929	0.02	-117.610

STD ERROR OF ESTIMATE = 0.001

X 43. CH + NO2 = CHO + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-119.330	-0.407	2.948	88.112
500	-119.741	-0.810	2.613	52.910
1000	-119.935	-0.643	2.097	26.670
1500	-120.415	-0.792	1.817	17.940
2000	-120.974	-0.993	1.559	13.560
2500	-121.590	-1.059	1.327	10.900
3000	-122.210	-1.018	1.138	9.152
3500	-122.812	-0.936	0.986	7.884
4000	-123.381	-0.849	0.867	6.931
4500	-123.950	-0.779	0.771	6.188
5000	-124.501	-0.732	0.692	5.592
5500	-125.057	-0.708	0.623	5.106
6000	-125.627	-0.700	0.562	4.699

PARAMETERS FOR KC

LOG A	B	C
1.462	-0.28	-119.330

STD ERROR OF ESTIMATE = 0.011

X 44. CH + NO2 = CN + HO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-40.910	-0.503	1.725	30.364
500	-41.039	-0.720	1.400	18.244
1000	-41.442	-0.890	0.847	9.242
1500	-41.933	-1.056	0.451	6.207
2000	-42.458	-0.988	0.148	4.672
2500	-42.874	-0.637	-0.039	3.739
3000	-43.074	-0.170	-0.113	3.113
3500	-43.051	0.249	-0.107	2.664
4000	-42.847	0.546	-0.053	2.329
4500	-42.527	0.712	0.022	2.070
5000	-42.153	0.768	0.101	1.864
5500	-41.773	0.742	0.174	1.698
6000	-41.420	0.663	0.235	1.560

PARAMETERS FOR KC

LOG A	B	C
1.365	-0.35	-40.910

STD ERROR OF ESTIMATE = 0.004

x 45. CH + NO2 = CO + HNO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-152.527	-0.565	-1.121	111.559
500	-152.681	-0.891	-1.509	66.407
1000	-153.130	-0.866	-2.134	32.999
1500	-153.589	-1.000	-2.503	21.829
2000	-154.135	-1.170	-2.816	16.227
2500	-154.742	-1.240	-3.088	12.852
3000	-155.360	-1.228	-3.313	10.594
3500	-155.964	-1.186	-3.500	8.973
4000	-156.547	-1.143	-3.655	7.754
4500	-157.110	-1.117	-3.787	6.802
5000	-157.666	-1.112	-3.905	6.037
5500	-158.226	-1.128	-4.012	5.410
6000	-158.797	-1.161	-4.111	4.886

PARAMETERS FOR KC

LOG A	B	C
0.793	-0.37	-152.527

STD ERROR OF ESTIMATE = 0.005

x 46. CH + NO2 = CO2 + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-153.952	0.031	-6.699	111.382
500	-153.904	0.306	-6.580	65.831
1000	-153.780	0.200	-6.403	32.207
1500	-153.706	0.089	-6.342	21.007
2000	-153.682	0.026	-6.328	15.409
2500	-153.662	0.073	-6.319	12.052
3000	-153.595	0.201	-6.295	9.813
3500	-153.457	0.361	-6.253	8.215
4000	-153.243	0.503	-6.197	7.018
4500	-152.958	0.634	-6.129	6.089
5000	-152.612	0.744	-6.056	5.346
5500	-152.212	0.856	-5.980	4.741
6000	-151.759	0.953	-5.901	4.238

PARAMETERS FOR KC

LOG A	B	C
-1.687	0.08	-153.952

STD ERROR OF ESTIMATE = 0.001

x 47. CH + N2 = CHN + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	3.265	-0.395	-4.665	-3.408
500	3.328	0.846	-4.528	-2.441
1000	3.960	1.375	-3.672	-1.666
1500	4.591	1.127	-3.157	-1.358
2000	5.097	0.911	-2.867	-1.182
2500	5.523	0.839	-2.673	-1.066
3000	5.958	0.881	-2.518	-0.983
3500	6.427	0.990	-2.374	-0.919
4000	6.964	1.144	-2.232	-0.866
4500	7.586	1.322	-2.087	-0.822
5000	8.300	1.506	-1.939	-0.784
5500	9.109	1.676	-1.788	-0.750
6000	9.999	1.818	-1.635	-0.717

PARAMETERS FOR KC

LOG A	B	C
-2.265	0.43	3.265

STD ERROR OF ESTIMATE = 0.003

x 48. [illegible] + N2 = CN + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	52.012	0.001	2.208	-37.644
500	52.016	0.053	2.221	-22.251
1000	52.018	-0.131	2.229	-10.882
1500	51.860	-0.479	2.106	-7.096
2000	51.593	-0.520	1.952	-5.211
2500	51.397	-0.220	1.863	-4.086
3000	51.399	0.231	1.863	-3.337
3500	51.624	0.650	1.932	-2.802
4000	52.032	0.960	2.040	-2.398
4500	52.562	1.145	2.165	-2.080
5000	53.157	1.220	2.290	-1.823
5500	53.769	1.214	2.407	-1.611
6000	54.362	1.150	2.511	-1.431

PARAMETERS FOR KC

LOG A	B	C
0.706	-0.07	52.012

STD ERROR OF ESTIMATE = 0.005

X 49. CH + N2O = CHN + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-107.730	-0.499	2.292	79.469
500	-107.859	-0.719	1.967	47.575
1000	-108.232	-0.768	1.452	23.971
1500	-108.652	-0.920	1.114	16.073
2000	-109.144	-1.035	0.830	12.108
2500	-109.667	-1.035	0.597	9.717
3000	-110.167	-0.959	0.415	8.116
3500	-110.622	-0.864	0.275	6.967
4000	-111.032	-0.780	0.165	6.103
4500	-111.407	-0.725	0.076	5.427
5000	-111.763	-0.702	0.001	4.885
5500	-112.114	-0.715	-0.066	4.440
6000	-112.483	-0.759	-0.130	4.069

PARAMETERS FOR KC

LOG A	B	C
1.416	-0.32	-107.730

STD ERROR OF ESTIMATE = 0.005

X 50. CH + N2O = CHO + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-152.610	-0.972	3.168	112.554
500	-153.171	-1.654	2.453	67.487
1000	-153.821	-1.596	1.309	33.903
1500	-154.788	-1.782	0.635	22.690
2000	-155.847	-1.998	0.090	17.050
2500	-156.967	-2.073	-0.368	13.623
3000	-158.096	-2.039	-0.742	11.355
3500	-159.210	-1.960	-1.052	9.711
4000	-160.291	-1.875	-1.307	8.472
4500	-161.374	-1.806	-1.524	7.504
5000	-162.439	-1.756	-1.712	6.726
5500	-163.504	-1.725	-1.878	6.087
6000	-164.580	-1.703	-2.026	5.553

PARAMETERS FOR KC

LOG A	B	C
2.559	-0.66	-152.610

STD ERROR OF ESTIMATE = 0.014

X 51. CH + N2O = CN + HNO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-33.810	-0.955	4.868	25.847
500	-34.076	-1.483	4.198	15.813
1000	-34.802	-1.446	3.188	8.302
1500	-35.578	-1.663	2.563	5.743
2000	-36.431	-1.692	2.072	4.434
2500	-37.219	-1.418	1.718	3.629
3000	-37.824	-1.004	1.497	3.083
3500	-38.227	-0.622	1.372	2.686
4000	-38.465	-0.350	1.309	2.387
4500	-38.599	-0.203	1.277	2.153
5000	-38.687	-0.162	1.258	1.966
5500	-38.773	-0.198	1.242	1.811
6000	-38.893	-0.285	1.222	1.684

PARAMETERS FOR KC

LOG A	B	C
2.761	-0.61	-33.810

STD ERROR OF ESTIMATE = 0.006

X 52. CH + O + M = CHO + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-192.559	-3.940	-28.524	139.298
500	-193.521	-2.851	-30.303	82.577
1000	-194.298	-1.297	-31.684	40.453
1500	-195.010	-1.133	-32.156	26.474
2000	-195.712	-1.240	-32.496	19.500
2500	-196.444	-1.284	-32.780	15.302
3000	-197.179	-1.259	-33.012	12.541
3500	-197.912	-1.221	-33.204	10.559
4000	-198.638	-1.197	-33.364	9.077
4500	-199.400	-1.202	-33.505	7.929
5000	-200.183	-1.234	-33.634	7.012
5500	-201.009	-1.289	-33.754	6.265
6000	-201.888	-1.355	-33.868	5.645

PARAMETERS FOR KC

LOG A	B	C
-2.505	0.29	-192.559

STD ERROR OF ESTIMATE = 0.009

X 53. CH + O = CO + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-175.876	-0.276	-7.583	127.262
500	-175.905	-0.019	-7.662	75.213
1000	-175.841	0.117	-7.582	36.772
1500	-175.888	-0.332	-7.612	23.962
2000	-176.160	-0.728	-7.766	17.553
2500	-176.585	-0.942	-7.955	13.698
3000	-177.082	-1.036	-8.137	11.122
3500	-177.613	-1.087	-8.301	9.275
4000	-178.168	-1.132	-8.448	7.888
4500	-178.748	-1.192	-8.584	6.805
5000	-179.362	-1.266	-8.715	5.934
5500	-180.016	-1.356	-8.839	5.221
6000	-180.718	-1.454	-8.961	4.625

PARAMETERS FOR KC

LOG A	B	C
-1.531	-0.04	-175.876

STD ERROR OF ESTIMATE = 0.008

X 54. CH + O2 = CHO + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-73.441	-0.486	-0.592	53.702
500	-73.781	-0.120	-0.763	32.084
1000	-73.504	0.365	-0.638	15.925
1500	-73.506	0.093	-0.528	10.594
2000	-73.672	-0.313	-0.558	7.929
2500	-74.006	-0.617	-0.664	6.306
3000	-74.463	-0.802	-0.793	5.252
3500	-75.004	-0.901	-0.925	4.481
4000	-75.590	-0.947	-1.048	3.901
4500	-76.232	-0.964	-1.161	3.448
5000	-76.891	-0.970	-1.263	3.085
5500	-77.573	-0.976	-1.357	2.787
6000	-78.282	-0.985	-1.441	2.537

PARAMETERS FOR KC

LOG A	B	C
-0.257	0.04	-73.441

STD ERROR OF ESTIMATE = 0.010

X 55. CH + O2 = CO + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-158.925	0.140	-1.630	116.137
500	-158.941	-0.282	-1.663	69.109
1000	-159.249	-0.856	-2.068	34.351
1500	-159.763	-1.189	-2.479	22.734
2000	-160.429	-1.461	-2.859	16.906
2500	-161.210	-1.651	-3.208	13.391
3000	-162.067	-1.771	-3.521	11.037
3500	-162.972	-1.843	-3.799	9.345
4000	-163.906	-1.887	-4.048	8.070
4500	-164.856	-1.916	-4.272	7.072
5000	-165.819	-1.933	-4.475	6.269
5500	-166.789	-1.949	-4.661	5.609
6000	-167.767	-1.964	-4.831	5.056

PARAMETERS FOR KC

LOG A	B	C
0.602	-0.32	-158.925

STD ERROR OF ESTIMATE = 0.011

X 56. CH + O2 = CO2 + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-183.954	-0.150	-14.261	131.724
500	-183.830	1.176	-13.972	77.298
1000	-182.994	1.829	-12.839	37.186
1500	-182.161	1.448	-12.157	23.883
2000	-181.556	0.981	-11.806	17.259
2500	-181.160	0.629	-11.627	13.296
3000	-180.907	0.395	-11.536	10.658
3500	-180.751	0.237	-11.487	8.775
4000	-180.660	0.132	-11.462	7.366
4500	-180.615	0.053	-11.451	6.269
5000	-180.604	-0.006	-11.449	5.391
5500	-180.613	-0.035	-11.451	4.674
6000	-180.637	-0.057	-11.455	4.076

PARAMETERS FOR KC

LOG A	B	C
-4.774	0.58	-183.954

STD ERROR OF ESTIMATE = 0.002

X 57. CHN + M = CN + H + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	123.800	3.366	27.586	-89.105
500	124.339	2.149	28.994	-52.623
1000	125.082	0.959	30.069	-25.679
1500	125.370	0.266	30.313	-16.731
2000	125.426	0.032	30.347	-12.288
2500	125.459	0.140	30.361	-9.644
3000	125.590	0.388	30.408	-7.894
3500	125.846	0.626	30.486	-6.654
4000	126.203	0.789	30.582	-5.728
4500	126.620	0.870	30.680	-5.012
5000	127.062	0.888	30.773	-4.442
5500	127.503	0.870	30.858	-3.977
6000	127.930	0.836	30.932	-3.592

PARAMETERS FOR KC

LOG A	B	C
2.987	-0.53	123.800

STD ERROR OF ESTIMATE = 0.012

X 58. CHN + CHO = CH2O + CN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	36.750	-1.410	-1.210	-27.201
500	36.696	-1.616	-2.051	-16.488
1000	35.970	-0.677	-2.859	-8.486
1500	35.878	-0.273	-3.045	-5.893
2000	35.925	0.039	-3.083	-4.600
2500	36.134	0.419	-3.034	-3.803
3000	36.541	0.799	-2.923	-3.300
3500	37.132	1.098	-2.776	-2.925
4000	37.854	1.283	-2.617	-2.641
4500	38.683	1.364	-2.460	-2.417
5000	39.544	1.372	-2.315	-2.234
5500	40.419	1.336	-2.184	-2.085
6000	41.290	1.274	-2.072	-1.958

PARAMETERS FOR KC

LOG A	B	C
0.555	-0.34	36.750

STD ERROR OF ESTIMATE = 0.015

X 59. CHN + CH2 = CH3 + CN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	14.170	-0.623	0.251	-10.332
500	13.989	-1.006	-0.203	-6.158
1000	13.608	-0.811	-0.839	-3.142
1500	13.166	-0.665	-1.141	-2.168
2000	12.898	-0.375	-1.298	-1.694
2500	12.812	0.043	-1.338	-1.413
3000	12.943	0.470	-1.291	-1.225
3500	13.270	0.817	-1.191	-1.089
4000	13.741	1.052	-1.065	-0.985
4500	14.304	1.185	-0.933	-0.899
5000	14.914	1.244	-0.804	-0.828
5500	15.541	1.261	-0.685	-0.768
6000	16.172	1.258	-0.575	-0.715

PARAMETERS FOR KC

LOG A	B	C
0.895	-0.31	14.170

STD ERROR OF ESTIMATE = 0.003

X 60. CHN + CH2O = CH3O + CN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	100.650	-1.100	1.185	-73.521
500	100.420	-1.023	0.594	-43.763
1000	100.098	-0.386	0.122	-21.851
1500	99.964	-0.165	0.010	-14.562
2000	99.943	0.104	-0.003	-10.922
2500	100.091	0.501	0.060	-8.737
3000	100.449	0.924	0.190	-7.277
3500	101.003	1.274	0.360	-6.229
4000	101.704	1.514	0.547	-5.438
4500	102.499	1.649	0.734	-4.818
5000	103.340	1.706	0.912	-4.319
5500	104.197	1.718	1.075	-3.918
6000	105.054	1.707	1.225	-3.668

PARAMETERS FOR KC

LOG A	B	C
0.731	-0.19	100.650

STD ERROR OF ESTIMATE = 0.006

X 61. CHN + CH3 = CH4 + CN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	18.985	-2.332	-1.697	-14.288
500	18.455	-2.558	-3.050	-8.733
1000	17.615	-0.939	-4.282	-4.786
1500	17.330	-0.303	-4.522	-3.513
2000	17.274	0.078	-4.556	-2.883
2500	17.418	0.506	-4.495	-2.505
3000	17.781	0.937	-4.363	-2.249
3500	18.342	1.290	-4.191	-2.061
4000	19.051	1.528	-4.002	-1.916
4500	19.852	1.662	-3.814	-1.798
5000	20.700	1.717	-3.635	-1.699
5500	21.562	1.727	-3.469	-1.615
6000	22.422	1.712	-3.320	-1.542

PARAMETERS FOR KC

LOG A	B	C
0.806	-0.48	18.985

STD ERROR OF ESTIMATE = 0.015

X 62. CHN + CO = CHO + CN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	107.117	-0.298	6.645	-77.069
500	106.723	-0.683	6.353	-45.259
1000	106.625	-0.455	5.967	-21.998
1500	106.248	-0.535	5.769	-14.219
2000	105.874	-0.480	5.617	-10.341
2500	105.600	-0.202	5.536	-8.040
3000	105.493	0.165	5.533	-6.475
3500	105.547	0.492	5.583	-5.370
4000	105.733	0.724	5.666	-4.539
4500	105.968	0.860	5.759	-3.888
5000	106.241	0.920	5.854	-3.364
5500	106.510	0.937	5.943	-2.933
6000	106.760	0.935	6.025	-2.572

PARAMETERS FOR KC

LOG A	B	C
2.013	-0.19	107.117

STD ERROR OF ESTIMATE = 0.010

X 63. CHN + H = CH2 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	120.915	-0.301	7.334	-87.027
500	120.773	-0.972	6.986	-51.261
1000	120.140	-1.113	6.212	-24.913
1500	119.694	-0.972	5.790	-16.173
2000	119.220	-0.937	5.518	-11.821
2500	118.755	-0.934	5.308	-9.219
3000	118.295	-0.911	5.141	-7.493
3500	117.855	-0.846	5.003	-6.264
4000	117.463	-0.729	4.897	-5.346
4500	117.145	-0.562	4.821	-4.634
5000	116.924	-0.350	4.773	-4.065
5500	116.817	-0.109	4.750	-3.601
6000	116.843	0.150	4.752	-3.214

PARAMETERS FOR KC

LOG A	B	C
2.764	-0.41	120.915

STD ERROR OF ESTIMATE = 0.002

X 64. CHN + H = CN + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	19.600	0.322	4.010	-13.493
500	19.539	-0.794	3.878	-7.694
1000	18.852	-1.758	2.983	-3.473
1500	17.896	-1.950	2.191	-2.129
2000	16.966	-1.709	1.655	-1.493
2500	16.229	-1.221	1.322	-1.130
3000	15.754	-0.689	1.149	-0.897
3500	15.534	-0.200	1.080	-0.734
4000	15.537	0.195	1.080	-0.614
4500	15.712	0.489	1.120	-0.519
5000	16.012	0.700	1.184	-0.441
5500	16.403	0.864	1.259	-0.377
6000	16.870	1.000	1.340	-0.322

PARAMETERS FOR KC

LOG A	B	C
2.592	-0.59	19.600

STD ERROR OF ESTIMATE = 0.010

X 65. CHN + HN = CH2 + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-29.962	-0.306	0.589	22.092
500	-30.098	-0.897	0.251	13.211
1000	-30.610	-0.769	-0.367	6.594
1500	-30.897	-0.706	-0.658	4.358
2000	-31.274	-0.811	-0.872	3.227
2500	-31.710	-0.935	-1.068	2.539
3000	-32.204	-1.040	-1.247	2.074
3500	-32.748	-1.125	-1.416	1.735
4000	-33.330	-1.199	-1.570	1.478
4500	-33.945	-1.265	-1.715	1.273
5000	-34.591	-1.318	-1.851	1.107
5500	-35.262	-1.359	-1.978	0.969
6000	-35.948	-1.381	-2.098	0.850

PARAMETERS FOR KC

LOG A	B	C
1.013	-0.32	-29.962

STD ERROR OF ESTIMATE = 0.002

X 66. CHN + HNO = CH2 + N2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	55.860	0.650	-2.071	-41.399
500	55.994	0.639	-1.726	-24.853
1000	56.210	0.546	-1.326	-12.590
1500	56.541	0.478	-1.115	-8.481
2000	56.750	0.361	-0.992	-6.418
2500	56.906	0.263	-0.923	-5.176
3000	57.019	0.195	-0.881	-4.346
3500	57.103	0.147	-0.856	-3.753
4000	57.167	0.111	-0.839	-3.307
4500	57.216	0.083	-0.827	-2.960
5000	57.253	0.064	-0.819	-2.682
5500	57.280	0.053	-0.813	-2.453
6000	57.307	0.054	-0.809	-2.265

PARAMETERS FOR KC

LOG A	B	C
-1.040	0.22	55.860

STD ERROR OF ESTIMATE = 0.000

X 67. CHN + HNO = CH2O + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-82.050	-1.427	-2.910	59.506
500	-82.399	-1.787	-3.796	35.186
1000	-83.049	-0.827	-4.738	17.115
1500	-83.332	-0.392	-4.973	11.054
2000	-83.491	-0.267	-5.065	8.016
2500	-83.614	-0.236	-5.120	6.191
3000	-83.731	-0.236	-5.162	4.972
3500	-83.851	-0.240	-5.200	4.100
4000	-83.972	-0.242	-5.233	3.444
4500	-84.092	-0.239	-5.261	2.934
5000	-84.208	-0.222	-5.285	2.526
5500	-84.312	-0.191	-5.304	2.191
6000	-84.397	-0.144	-5.320	1.911

PARAMETERS FOR KC

LOG A	B	C
0.354	-0.39	-82.050

STD ERROR OF ESTIMATE = 0.008

X 68. CHN + HO = CHO + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	57.220	-0.502	4.865	-40.884
500	56.798	-0.778	4.501	-23.843
1000	56.694	-0.381	4.099	-11.495
1500	56.369	-0.443	3.944	-7.351
2000	55.994	-0.617	3.792	-5.290
2500	55.555	-0.746	3.638	-4.079
3000	55.063	-0.819	3.497	-3.247
3500	54.531	-0.856	3.366	-2.669
4000	53.977	-0.866	3.251	-2.239
4500	53.380	-0.859	3.150	-1.904
5000	52.781	-0.841	3.060	-1.638
5500	52.170	-0.809	2.981	-1.421
6000	51.559	-0.762	2.914	-1.241

PARAMETERS FOR KC

LOG A	B	C
1.626	-0.20	57.220

STD ERROR OF ESTIMATE = 0.009

X 69. CHN + HO = CH2 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	72.138	-0.335	4.578	-51.877
500	72.012	-0.740	4.266	-30.544
1000	71.673	-0.322	3.875	-14.833
1500	71.608	-0.287	3.765	-9.610
2000	71.423	-0.465	3.660	-7.005
2500	71.145	-0.643	3.535	-5.446
3000	70.788	-0.779	3.407	-4.412
3500	70.371	-0.885	3.277	-3.678
4000	69.906	-0.970	3.153	-3.130
4500	69.402	-1.043	3.035	-2.708
5000	68.866	-1.105	2.922	-2.372
5500	68.298	-1.158	2.815	-2.099
6000	67.708	-1.199	2.712	-1.875

PARAMETERS FOR KC

LOG A	B	C
1.497	-0.18	72.138

STD ERROR OF ESTIMATE = 0.001

X 70. CHN + HO = CH2O + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	45.223	-2.308	-3.218	-33.849
500	44.806	-1.601	-4.299	-20.521
1000	44.606	0.448	-4.661	-10.765
1500	44.978	0.890	-4.364	-7.506
2000	45.423	0.853	-4.110	-5.861
2500	45.821	0.732	-3.932	-4.862
3000	46.163	0.630	-3.807	-4.193
3500	46.466	0.582	-3.716	-3.711
4000	46.763	0.601	-3.638	-3.348
4500	47.087	0.682	-3.562	-3.063
5000	47.468	0.817	-3.484	-2.833
5500	47.929	0.989	-3.398	-2.645
6000	48.486	1.180	-3.304	-2.485

PARAMETERS FOR KC

LOG A	B	C
-0.790	-0.03	45.223

STD ERROR OF ESTIMATE = 0.016

X 71. CHN + HO = CN + H2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	4.410	-0.744	1.419	-2.924
500	4.168	-1.459	0.816	-1.644
1000	3.411	-1.490	-0.234	-0.797
1500	2.699	-1.336	-0.813	-0.571
2000	2.105	-1.008	-1.158	-0.484
2500	1.714	-0.541	-1.335	-0.441
3000	1.567	-0.056	-1.388	-0.418
3500	1.644	0.342	-1.367	-0.402
4000	1.889	0.617	-1.301	-0.388
4500	2.240	0.776	-1.218	-0.376
5000	2.650	0.847	-1.132	-0.363
5500	3.081	0.874	-1.049	-0.352
6000	3.519	0.879	-0.973	-0.341

PARAMETERS FOR KC

LOG A	B	C
1.837	-0.55	4.410

STD ERROR OF ESTIMATE = 0.002

X 72. CHN + HO2 = CHO + HNO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-4.500	-0.360	3.799	4.126
500	-4.919	-0.854	3.444	2.904
1000	-5.063	-0.431	2.986	1.759
1500	-5.408	-0.479	2.815	1.403
2000	-5.803	-0.662	2.653	1.214
2500	-6.268	-0.805	2.487	1.073
3000	-6.793	-0.893	2.333	1.006
3500	-7.366	-0.943	2.190	0.939
4000	-7.967	-0.965	2.064	0.886
4500	-8.615	-0.969	1.950	0.844
5000	-9.272	-0.960	1.848	0.809
5500	-9.943	-0.933	1.757	0.779
6000	-10.617	-0.889	1.679	0.754

PARAMETERS FOR KC

LOG A	B	C
1.441	-0.22	-4.500

STD ERROR OF ESTIMATE = 0.010

X 73. CHN + HO2 = CH2 + NO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	62.960	0.198	1.072	-45.916
500	62.957	-0.124	1.072	-27.284
1000	62.850	-0.010	1.015	-13.530
1500	62.896	-0.129	0.997	-8.945
2000	62.777	-0.343	0.932	-6.656
2500	62.561	-0.518	0.834	-5.286
3000	62.269	-0.639	0.729	-4.376
3500	61.927	-0.724	0.623	-3.731
4000	61.549	-0.785	0.523	-3.249
4500	61.144	-0.832	0.428	-2.877
5000	60.719	-0.866	0.338	-2.580
5500	60.280	-0.887	0.255	-2.340
6000	59.834	-0.894	0.178	-2.141

PARAMETERS FOR KC

LOG A	B	C
0.355	-0.04	62.960

STD ERROR OF ESTIMATE = 0.003

X 74. CHN + HO2 = CH2O + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-41.670	-1.314	0.013	30.547
500	-42.006	-1.706	-0.838	18.178
1000	-42.523	-0.430	-1.609	8.942
1500	-42.604	-0.009	-1.679	5.840
2000	-42.591	0.034	-1.672	4.288
2500	-42.582	-0.003	-1.668	3.358
3000	-42.595	-0.049	-1.672	2.739
3500	-42.629	-0.087	-1.683	2.295
4000	-42.680	-0.112	-1.697	1.961
4500	-42.740	-0.127	-1.711	1.701
5000	-42.804	-0.128	-1.724	1.494
5500	-42.865	-0.114	-1.735	1.323
6000	-42.917	-0.089	-1.745	1.181

PARAMETERS FOR KC

LOG A	B	C
0.653	-0.27	-41.670

STD ERROR OF ESTIMATE = 0.010

X 75. CHN + H2 = CH2 + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	150.062	-0.227	10.197	-107.770
500	149.922	-0.971	9.857	-63.377
1000	149.346	-0.861	9.150	-30.656
1500	149.067	-0.628	8.862	-19.782
2000	148.750	-0.659	8.682	-14.357
2500	148.394	-0.772	8.522	-11.109
3000	147.982	-0.872	8.373	-8.950
3500	147.518	-0.986	8.229	-7.413
4000	146.994	-1.108	8.089	-6.264
4500	146.409	-1.228	7.953	-5.373
5000	145.769	-1.336	7.818	-4.663
5500	145.074	-1.435	7.686	-4.085
6000	144.336	-1.518	7.558	-3.606

PARAMETERS FOR KC

LOG A	B	C
3.144	-0.33	150.062

STD ERROR OF ESTIMATE = 0.000

X 76. CHN + H2 = CH3 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	115.485	-1.246	3.575	-83.866
500	115.223	-1.184	2.905	-49.725
1000	114.896	-0.166	2.410	-24.582
1500	114.964	0.313	2.458	-16.212
2000	115.152	0.397	2.565	-12.022
2500	115.338	0.330	2.648	-9.502
3000	115.484	0.248	2.701	-7.821
3500	115.591	0.171	2.732	-6.619
4000	115.667	0.128	2.752	-5.717
4500	115.737	0.134	2.768	-5.014
5000	115.826	0.194	2.785	-4.452
5500	115.955	0.288	2.806	-3.992
6000	116.145	0.408	2.837	-3.607

PARAMETERS FOR KC

LOG A	B	C
1.066	-0.13	115.485

STD ERROR OF ESTIMATE = 0.010

X 77. CHN + H2O = CH2 + HNO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	141.648	-0.047	5.735	-102.575
500	141.627	-0.045	5.681	-60.662
1000	141.692	0.490	5.845	-29.705
1500	141.983	0.306	6.027	-19.369
2000	142.031	-0.114	6.060	-14.195
2500	141.879	-0.485	5.991	-11.093
3000	141.564	-0.768	5.877	-9.027
3500	141.122	-0.985	5.741	-7.557
4000	140.584	-1.157	5.598	-6.458
4500	139.970	-1.297	5.454	-5.606
5000	139.292	-1.412	5.311	-4.928
5500	138.558	-1.515	5.172	-4.376
6000	137.779	-1.604	5.037	-3.919

PARAMETERS FOR KC

LOG A	B	C
1.004	0.08	141.648

STD ERROR OF ESTIMATE = 0.002

X 78. CHN + H2O = CH2O + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	89.560	-1.168	2.236	-65.161
500	89.326	-0.935	1.634	-38.687
1000	89.253	0.432	1.474	-19.184
1500	89.548	0.620	1.712	-12.673
2000	89.814	0.430	1.867	-9.406
2500	89.975	0.214	1.939	-7.441
3000	90.037	0.036	1.962	-6.129
3500	90.019	-0.100	1.957	-5.192
4000	89.942	-0.200	1.935	-4.492
4500	89.823	-0.271	1.908	-3.945
5000	89.675	-0.316	1.877	-3.509
5500	89.508	-0.347	1.846	-3.154
6000	89.330	-0.367	1.815	-2.858

PARAMETERS FOR KC

LOG A	B	C
0.344	0.01	89.560

STD ERROR OF ESTIMATE = 0.008

X 79. CHN + H2O = CH3 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	81.898	-0.214	3.410	-59.285
500	81.833	-0.287	3.247	-35.058
1000	81.870	0.357	3.270	-17.178
1500	82.075	0.384	3.437	-11.207
2000	82.216	0.168	3.520	-8.215
2500	82.243	-0.059	3.532	-6.418
3000	82.164	-0.253	3.504	-5.219
3500	81.997	-0.410	3.453	-4.365
4000	81.758	-0.535	3.389	-3.727
4500	81.466	-0.634	3.320	-3.231
5000	81.130	-0.708	3.250	-2.837
5500	80.758	-0.771	3.179	-2.515
6000	80.361	-0.820	3.110	-2.249

PARAMETERS FOR KC

LOG A	B	C
0.555	0.05	81.898

STD ERROR OF ESTIMATE = 0.002

X 80. CHN + H2O = CH3O + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	141.463	-2.664	-3.452	-104.446
500	141.058	-1.165	-4.521	-62.640
1000	141.293	1.552	-4.305	-31.819
1500	142.243	2.061	-3.541	-21.497
2000	143.261	1.965	-2.955	-16.299
2500	144.198	1.774	-2.537	-13.158
3000	145.045	1.610	-2.229	-11.052
3500	145.825	1.514	-1.989	-9.538
4000	146.578	1.498	-1.790	-8.398
4500	147.346	1.555	-1.610	-7.505
5000	148.158	1.676	-1.440	-6.789
5500	149.045	1.833	-1.274	-6.211
6000	150.021	2.008	-1.106	-5.812

PARAMETERS FOR KC

LOG A	B	C
-1.896	0.32	141.463

STD ERROR OF ESTIMATE = 0.022

X 81. CHN + N = CN + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	48.747	0.396	6.873	-34.236
500	48.688	-0.793	6.749	-19.810
1000	48.058	-1.506	5.901	-9.216
1500	47.269	-1.606	5.263	-5.738
2000	46.496	-1.431	4.819	-4.029
2500	45.868	-1.059	4.536	-3.020
3000	45.468	-0.650	4.381	-2.354
3500	45.197	-0.340	4.306	-1.883
4000	45.068	-0.184	4.272	-1.532
4500	44.976	-0.177	4.252	-1.258
5000	44.857	-0.286	4.229	-1.039
5500	44.660	-0.462	4.195	-0.861
6000	44.383	-0.668	4.146	-0.714

PARAMETERS FOR KC

LOG A	B	C
2.972	-0.50	48.747

STD ERROR OF ESTIMATE = 0.008

X 82. CHN + NO = CHO + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-44.880	-0.473	0.876	33.085
500	-45.312	-0.935	0.486	19.912
1000	-45.589	-0.828	-0.143	9.932
1500	-46.136	-0.862	-0.479	6.617
2000	-46.703	-0.963	-0.740	4.942
2500	-47.300	-1.038	-0.965	3.906
3000	-47.929	-1.080	-1.157	3.239
3500	-48.588	-1.096	-1.327	2.744
4000	-49.259	-1.095	-1.472	2.369
4500	-49.967	-1.081	-1.600	2.077
5000	-50.676	-1.054	-1.713	1.841
5500	-51.390	-1.010	-1.812	1.647
6000	-52.097	-0.944	-1.896	1.484

PARAMETERS FOR KC

LOG A	B	C
1.142	-0.33	-44.880

STD ERROR OF ESTIMATE = 0.010

X 83. CHN + NO = CN + HNO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	73.920	-0.456	2.576	-53.622
500	73.783	-0.764	2.231	-31.762
1000	73.430	-0.678	1.736	-15.669
1500	73.074	-0.743	1.449	-10.330
2000	72.713	-0.657	1.242	-7.674
2500	72.448	-0.383	1.121	-6.088
3000	72.343	-0.045	1.082	-5.033
3500	72.395	0.242	1.097	-4.281
4000	72.567	0.430	1.144	-3.716
4500	72.808	0.522	1.201	-3.274
5000	73.076	0.540	1.257	-2.919
5500	73.341	0.517	1.308	-2.629
6000	73.590	0.474	1.352	-2.385

PARAMETERS FOR KC

LOG A	B	C
1.344	-0.28	73.920

STD ERROR OF ESTIMATE = 0.001

X 84. CHN + NO2 = CHO + N2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-11.600	0.092	0.656	8.643
500	-11.882	-0.091	0.646	5.335
1000	-11.703	0.125	0.645	2.699
1500	-11.763	0.128	0.703	1.867
2000	-11.833	0.042	0.729	1.452
2500	-11.923	-0.024	0.730	1.183
3000	-12.043	-0.059	0.723	1.036
3500	-12.190	-0.072	0.711	0.917
4000	-12.349	-0.069	0.702	0.828
4500	-12.543	-0.054	0.695	0.761
5000	-12.738	-0.030	0.691	0.707
5500	-12.943	0.007	0.689	0.666
6000	-13.144	0.059	0.692	0.630

PARAMETERS FOR KC

LOG A	B	C
0.045	0.04	-11.600

STD ERROR OF ESTIMATE = 0.009

X 85. CHN + O = CHO + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	30.106	-0.570	3.599	-21.282
500	29.673	-0.830	3.205	-12.267
1000	29.516	-0.551	2.735	-5.851
1500	29.091	-0.654	2.499	-3.692
2000	28.615	-0.814	2.289	-2.625
2500	28.083	-0.923	2.094	-2.014
3000	27.511	-0.973	1.921	-1.583
3500	26.913	-0.966	1.769	-1.292
4000	26.326	-0.898	1.645	-1.077
4500	25.748	-0.774	1.546	-0.910
5000	25.237	-0.598	1.473	-0.779
5500	24.804	-0.383	1.425	-0.671
6000	24.471	-0.138	1.403	-0.580

PARAMETERS FOR KC

LOG A	B	C
1.526	-0.26	30.106

STD ERROR OF ESTIMATE = 0.010

X 86. CHN + O = CN + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	21.633	0.328	5.607	-14.634
500	21.563	-0.845	5.453	-8.234
1000	20.880	-1.676	4.537	-3.572
1500	19.991	-1.817	3.818	-2.079
2000	19.117	-1.628	3.316	-1.364
2500	18.396	-1.236	2.992	-0.955
3000	17.889	-0.804	2.805	-0.690
3500	17.579	-0.450	2.709	-0.506
4000	17.417	-0.216	2.666	-0.370
4500	17.344	-0.092	2.648	-0.264
5000	17.313	-0.043	2.642	-0.180
5500	17.294	-0.036	2.639	-0.111
6000	17.275	-0.044	2.635	-0.053

PARAMETERS FOR KC

LOG A	B	C
2.872	-0.56	21.633

STD ERROR OF ESTIMATE = 0.009

X 87. CHN + O = CO + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-28.264	0.124	3.827	21.551
500	-28.362	-0.940	3.601	13.182
1000	-29.051	-1.602	2.669	6.931
1500	-29.888	-1.729	1.993	4.789
2000	-30.763	-1.765	1.491	3.687
2500	-31.649	-1.780	1.094	3.006
3000	-32.541	-1.788	0.769	2.538
3500	-33.437	-1.798	0.492	2.195
4000	-34.339	-1.806	0.251	1.930
4500	-35.244	-1.811	0.039	1.720
5000	-36.147	-1.804	-0.152	1.546
5500	-37.046	-1.782	-0.323	1.401
6000	-37.926	-1.741	-0.476	1.278

PARAMETERS FOR KC

LOG A	B	C
2.485	-0.57	-28.264

STD ERROR OF ESTIMATE = 0.010

X 88. CHN + O2 = CHO + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-1.720	-0.188	6.796	2.743
500	-2.124	-0.881	6.484	2.346
1000	-2.359	-0.733	5.912	1.808
1500	-2.870	-0.826	5.607	1.643
2000	-3.451	-1.075	5.338	1.544
2500	-4.152	-1.341	5.068	1.452
3000	-4.981	-1.576	4.803	1.413
3500	-5.930	-1.761	4.545	1.364
4000	-6.969	-1.894	4.301	1.321
4500	-8.103	-1.979	4.072	1.283
5000	-9.278	-2.020	3.862	1.249
5500	-10.488	-2.025	3.668	1.219
6000	-11.713	-1.997	3.493	1.190

PARAMETERS FOR KC

LOG A	B	C
2.391	-0.31	-1.720

STD ERROR OF ESTIMATE = 0.011

X 89. CHN + O2 = CN + HO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	76.700	-0.284	5.573	-55.005
500	76.578	-0.771	5.271	-32.320
1000	76.134	-0.980	4.662	-15.620
1500	75.612	-1.090	4.241	-10.090
2000	75.065	-1.070	3.927	-7.344
2500	74.564	-0.919	3.702	-5.709
3000	74.155	-0.728	3.552	-4.626
3500	73.831	-0.576	3.452	-3.856
4000	73.565	-0.499	3.381	-3.281
4500	73.320	-0.488	3.323	-2.835
5000	73.070	-0.520	3.271	-2.479
5500	72.796	-0.575	3.219	-2.189
6000	72.494	-0.634	3.166	-1.949

PARAMETERS FOR KC

LOG A	B	C
2.294	-0.38	76.700

STD ERROR OF ESTIMATE = 0.005

X 90. CHN + O2 = CO + HNO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-34.917	-0.346	2.727	26.190
500	-35.064	-0.942	2.362	15.843
1000	-35.554	-0.956	1.681	8.137
1500	-36.044	-1.034	1.287	5.532
2000	-36.612	-1.252	0.963	4.211
2500	-37.304	-1.522	0.653	3.404
3000	-38.131	-1.786	0.352	2.855
3500	-39.082	-2.011	0.059	2.453
4000	-40.135	-2.188	-0.221	2.144
4500	-41.263	-2.317	-0.486	1.897
5000	-42.443	-2.400	-0.735	1.694
5500	-43.657	-2.445	-0.967	1.523
6000	-44.883	-2.458	-1.180	1.377

PARAMETERS FOR KC

LOG A	B	C
1.723	-0.40	-34.917

STD ERROR OF ESTIMATE = 0.006

X 91. CHN + O2 = CO2 + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-36.342	0.250	-2.851	26.013
500	-36.287	0.255	-2.709	15.267
1000	-36.204	0.110	-2.588	7.345
1500	-36.161	0.055	-2.552	4.710
2000	-36.159	-0.056	-2.549	3.393
2500	-36.224	-0.209	-2.578	2.604
3000	-36.366	-0.357	-2.630	2.074
3500	-36.575	-0.474	-2.694	1.695
4000	-36.831	-0.542	-2.763	1.408
4500	-37.111	-0.566	-2.828	1.184
5000	-37.389	-0.544	-2.886	1.003
5500	-37.643	-0.481	-2.935	0.854
6000	-37.845	-0.344	-2.970	0.729

PARAMETERS FOR KC

LOG A	B	C
-0.757	0.05	-36.342

STD ERROR OF ESTIMATE = 0.002

X 92. CHJ + M = CO + H + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	16.683	3.664	20.941	-12.036
500	17.616	2.832	22.641	-7.364
1000	18.457	1.414	24.102	-3.681
1500	19.122	0.801	24.544	-2.512
2000	19.552	0.512	24.730	-1.947
2500	19.859	0.342	24.825	-1.604
3000	20.097	0.223	24.875	-1.419
3500	20.299	0.134	24.903	-1.284
4000	20.470	0.065	24.916	-1.189
4500	20.652	0.010	24.921	-1.124
5000	20.821	-0.032	24.919	-1.078
5500	20.993	-0.067	24.915	-1.044
6000	21.170	-0.099	24.907	-1.020

PARAMETERS FOR KC

LOG A	B	C
0.974	-0.33	16.683

STD ERROR OF ESTIMATE = 0.014

X 93. CHO + CHO = CH2 + CO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-19.704	0.605	-9.934	12.277
500	-18.949	1.154	-9.428	6.220
1000	-18.866	0.902	-8.724	2.199
1500	-18.052	1.037	-8.338	0.808
2000	-17.279	1.171	-8.019	0.134
2500	-16.482	1.235	-7.749	-0.215
3000	-15.660	1.259	-7.523	-0.504
3500	-14.805	1.258	-7.328	-0.678
4000	-13.933	1.248	-7.162	-0.804
4500	-12.986	1.229	-7.015	-0.903
5000	-12.026	1.212	-6.886	-0.980
5500	-11.027	1.215	-6.769	-1.043
6000	-9.983	1.216	-6.665	-1.095

PARAMETERS FOR KC

LOG A	B	C
-3.278	0.38	-19.704

STD ERROR OF ESTIMATE = 0.021

X 94. CHO + CHO = CH2O + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-70.367	-1.112	-7.855	49.868
500	-70.027	-0.933	-8.404	28.771
1000	-70.655	-0.222	-8.826	13.512
1500	-70.370	0.262	-8.814	8.326
2000	-69.949	0.519	-8.700	5.741
2500	-69.466	0.621	-8.570	4.237
3000	-68.952	0.634	-8.456	3.175
3500	-68.415	0.606	-8.359	2.445
4000	-67.879	0.559	-8.283	1.898
4500	-67.285	0.504	-8.219	1.471
5000	-66.697	0.452	-8.169	1.130
5500	-66.091	0.399	-8.127	0.848
6000	-65.470	0.339	-8.097	0.614

PARAMETERS FOR KC

LOG A	B	C
-1.457	-0.14	-70.367

STD ERROR OF ESTIMATE = 0.024

X 95. CHO + CH2 = CH3 + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-92.947	-0.325	-6.394	66.737
500	-92.734	-0.323	-6.556	39.101
1000	-93.017	-0.356	-6.806	18.856
1500	-93.082	-0.130	-6.890	12.051
2000	-92.976	0.105	-6.915	8.647
2500	-92.788	0.245	-6.874	6.627
3000	-92.550	0.305	-6.824	5.250
3500	-92.277	0.325	-6.774	4.281
4000	-91.992	0.328	-6.731	3.554
4500	-91.664	0.325	-6.692	2.989
5000	-91.327	0.324	-6.658	2.536
5500	-90.969	0.324	-6.628	2.165
6000	-90.588	0.323	-6.600	1.857

PARAMETERS FOR KC

LOG A	B	C
-1.117	-0.11	-92.947

STD ERROR OF ESTIMATE = 0.010

X 96. CHO + CH2O = CH3 + CO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-42.284	1.392	-8.473	29.146
500	-41.656	1.764	-7.580	16.550
1000	-41.228	0.768	-6.704	7.543
1500	-40.764	0.645	-6.434	4.533
2000	-40.306	0.757	-6.234	3.040
2500	-39.804	0.859	-6.053	2.175
3000	-39.258	0.930	-5.891	1.571
3500	-38.667	0.977	-5.743	1.158
4000	-38.046	1.017	-5.610	0.852
4500	-37.365	1.050	-5.488	0.615
5000	-36.656	1.084	-5.375	0.426
5500	-35.905	1.140	-5.270	0.274
6000	-35.101	1.200	-5.168	0.148

PARAMETERS FOR KC

LOG A	B	C
-2.939	0.41	-42.284

STD ERROR OF ESTIMATE = 0.009

x 97. CHO + CH2O = CH3O + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-6.467	-0.802	-5.460	3.548
500	-6.303	-0.340	-5.759	1.496
1000	-6.527	0.069	-5.845	0.147
1500	-6.284	0.370	-5.759	-0.343
2000	-5.931	0.584	-5.620	-0.581
2500	-5.509	0.703	-5.476	-0.697
3000	-5.044	0.759	-5.343	-0.802
3500	-4.544	0.782	-5.223	-0.859
4000	-4.029	0.790	-5.119	-0.899
4500	-3.469	0.789	-5.025	-0.930
5000	-2.901	0.786	-4.942	-0.955
5500	-2.313	0.781	-4.868	-0.985
6000	-1.706	0.772	-4.800	-1.096

PARAMETERS FOR KC

LOG A	B	C
-1.281	0.00	-6.467

STD ERROR OF ESTIMATE = 0.012

x 98. CHO + CH3 = CH2 + CH2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	22.580	-0.787	-1.461	-16.869
500	22.707	-0.610	-1.848	-10.330
1000	22.362	0.134	-2.020	-5.344
1500	22.712	0.392	-1.904	-3.725
2000	23.027	0.414	-1.785	-2.906
2500	23.322	0.376	-1.696	-2.390
3000	23.598	0.329	-1.632	-2.075
3500	23.862	0.281	-1.585	-1.836
4000	24.113	0.231	-1.552	-1.656
4500	24.379	0.179	-1.527	-1.518
5000	24.630	0.128	-1.511	-1.406
5500	24.878	0.075	-1.499	-1.317
6000	25.118	0.016	-1.497	-1.243

PARAMETERS FOR KC

LOG A	B	C
-0.339	-0.02	22.580

STD ERROR OF ESTIMATE = 0.013

x 99. CHO + CH3 = CH4 + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-88.132	-2.034	-8.342	62.781
500	-88.268	-1.875	-9.403	36.526
1000	-89.010	-0.484	-10.249	17.212
1500	-88.918	0.232	-10.291	10.706
2000	-88.600	0.558	-10.173	7.458
2500	-88.182	0.708	-10.031	5.535
3000	-87.712	0.772	-9.896	4.226
3500	-87.205	0.798	-9.774	3.309
4000	-86.682	0.804	-9.668	2.623
4500	-86.116	0.802	-9.573	2.090
5000	-85.541	0.797	-9.489	1.665
5500	-84.948	0.790	-9.412	1.318
6000	-84.338	0.777	-9.345	1.030

PARAMETERS FOR KC

LOG A	B	C
-1.206	-0.28	-88.132

STD ERROR OF ESTIMATE = 0.020

x100. CHO + CH3O = CH2O + CH2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-63.900	-0.310	-2.395	46.320
500	-63.724	-0.593	-2.645	27.275
1000	-64.128	-0.291	-2.981	13.365
1500	-64.086	-0.108	-3.055	8.669
2000	-64.018	-0.065	-3.080	6.322
2500	-63.956	-0.082	-3.094	4.934
3000	-63.908	-0.125	-3.113	3.977
3500	-63.871	-0.176	-3.136	3.304
4000	-63.850	-0.231	-3.164	2.797
4500	-63.816	-0.285	-3.194	2.401
5000	-63.796	-0.334	-3.227	2.085
5500	-63.778	-0.382	-3.259	1.833
6000	-63.764	-0.433	-3.297	1.710

PARAMETERS FOR KC

LOG A	B	C
-0.176	-0.14	-63.900

STD ERROR OF ESTIMATE = 0.011

X101. CHO + CH3O = CH4 + CO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-123.949	0.160	-11.355	88.379
500	-123.621	0.229	-11.224	51.580
1000	-123.711	0.215	-11.108	24.608
1500	-123.398	0.507	-10.966	15.582
2000	-122.975	0.731	-10.787	11.079
2500	-122.477	0.864	-10.608	8.407
3000	-121.926	0.943	-10.444	6.599
3500	-121.328	0.993	-10.294	5.326
4000	-120.699	1.031	-10.159	4.374
4500	-120.012	1.063	-10.036	3.635
5000	-119.296	1.095	-9.922	3.048
5500	-118.540	1.149	-9.814	2.577
6000	-117.733	1.205	-9.713	2.274

PARAMETERS FOR KC

LOG A	B	C
-2.864	0.12	-123.949

STD ERROR OF ESTIMATE = 0.012

X102. CHO + CH4 = CH2 + CH3O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	104.245	0.445	1.421	-76.102
500	104.672	0.925	1.796	-45.360
1000	104.845	0.687	2.384	-22.409
1500	105.346	0.530	2.628	-14.774
2000	105.696	0.440	2.768	-10.945
2500	105.995	0.371	2.859	-8.622
3000	106.266	0.316	2.921	-7.103
3500	106.523	0.265	2.966	-6.004
4000	106.766	0.217	2.997	-5.178
4500	107.026	0.166	3.021	-4.538
5000	107.270	0.117	3.036	-4.026
5500	107.513	0.066	3.045	-3.620
6000	107.750	0.011	3.048	-3.369

PARAMETERS FOR KC

LOG A	B	C
-0.413	0.26	104.245

STD ERROR OF ESTIMATE = 0.009

X103. CHO + CH4 = CH2O + CH3

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	17.765	0.922	0.487	-12.913
500	18.241	0.942	0.999	-7.755
1000	18.355	0.262	1.423	-3.700
1500	18.548	0.030	1.477	-2.380
2000	18.651	-0.039	1.473	-1.717
2500	18.716	-0.087	1.461	-1.298
3000	18.760	-0.138	1.440	-1.051
3500	18.790	-0.192	1.415	-0.864
4000	18.803	-0.245	1.385	-0.725
4500	18.831	-0.298	1.354	-0.619
5000	18.844	-0.345	1.320	-0.535
5500	18.857	-0.391	1.285	-0.470
6000	18.868	-0.438	1.248	-0.416

PARAMETERS FOR KC

LOG A	B	C
-0.250	0.14	17.765

STD ERROR OF ESTIMATE = 0.009

X104. CHO + H = CH2 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	90.809	0.269	3.735	-65.745
500	91.100	-0.142	3.781	-38.994
1000	90.624	-0.562	3.477	-19.062
1500	90.603	-0.318	3.291	-12.481
2000	90.605	-0.123	3.229	-9.196
2500	90.672	-0.011	3.214	-7.205
3000	90.784	0.062	3.220	-5.910
3500	90.942	0.120	3.234	-4.972
4000	91.137	0.169	3.252	-4.269
4500	91.397	0.212	3.275	-3.724
5000	91.687	0.248	3.300	-3.286
5500	92.013	0.274	3.325	-2.930
6000	92.372	0.288	3.349	-2.634

PARAMETERS FOR KC

LOG A	B	C
1.238	-0.15	90.809

STD ERROR OF ESTIMATE = 0.009

X105. CHO + H + M = CH2O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-87.050	-4.776	-28.796	61.904
500	-87.643	-3.765	-31.045	36.135
1000	-89.112	-1.636	-32.928	17.193
1500	-89.492	-0.539	-33.358	10.838
2000	-89.501	0.007	-33.430	7.688
2500	-89.325	0.279	-33.395	5.841
3000	-89.049	0.411	-33.331	4.594
3500	-88.714	0.472	-33.262	3.729
4000	-88.349	0.494	-33.199	3.087
4500	-87.937	0.494	-33.140	2.595
5000	-87.518	0.484	-33.088	2.208
5500	-87.084	0.466	-33.042	1.892
6000	-86.640	0.438	-33.004	1.634

PARAMETERS FOR KC

LOG A	B	C
-2.431	0.19	-87.050

STD ERROR OF ESTIMATE = 0.026

X106. CHO + H = CO + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-87.517	0.620	-2.635	63.576
500	-87.184	-0.111	-2.475	37.565
1000	-87.773	-1.303	-3.004	18.525
1500	-88.352	-1.415	-3.578	12.090
2000	-88.908	-1.229	-3.962	8.848
2500	-89.371	-1.019	-4.214	6.910
3000	-89.739	-0.854	-4.384	5.578
3500	-90.013	-0.692	-4.503	4.636
4000	-90.196	-0.529	-4.586	3.925
4500	-90.256	-0.371	-4.639	3.369
5000	-90.229	-0.220	-4.670	2.923
5500	-90.107	-0.073	-4.684	2.556
6000	-89.890	0.065	-4.685	2.250

PARAMETERS FOR KC

LOG A	B	C
0.579	-0.39	-87.517

STD ERROR OF ESTIMATE = 0.011

X107. CHO + HN = CH2 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	14.918	0.167	-0.287	-10.993
500	15.214	0.038	-0.235	-6.701
1000	14.979	0.059	-0.224	-3.338
1500	15.239	0.156	-0.179	-2.259
2000	15.429	0.152	-0.132	-1.715
2500	15.590	0.103	-0.103	-1.367
3000	15.725	0.040	-0.090	-1.165
3500	15.840	-0.029	-0.089	-1.009
4000	15.929	-0.104	-0.098	-0.891
4500	16.022	-0.184	-0.115	-0.804
5000	16.085	-0.264	-0.138	-0.734
5500	16.128	-0.349	-0.166	-0.678
6000	16.149	-0.437	-0.202	-0.634

PARAMETERS FOR KC

LOG A	B	C
-0.129	0.01	14.918

STD ERROR OF ESTIMATE = 0.009

X108. CHO + HN = CH2O + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-11.997	-1.806	-8.083	7.035
500	-11.992	-0.823	-8.800	3.322
1000	-12.088	0.829	-8.760	0.730
1500	-11.391	1.333	-8.308	-0.155
2000	-10.571	1.470	-7.902	-0.571
2500	-9.734	1.478	-7.570	-0.783
3000	-8.900	1.449	-7.304	-0.946
3500	-8.065	1.438	-7.082	-1.042
4000	-7.214	1.467	-6.889	-1.109
4500	-6.293	1.541	-6.712	-1.159
5000	-5.313	1.658	-6.544	-1.195
5500	-4.241	1.798	-6.379	-1.224
6000	-3.073	1.942	-6.218	-1.244

PARAMETERS FOR KC

LOG A	B	C
-2.417	0.16	-11.997

STD ERROR OF ESTIMATE = 0.022

X109. CHO + HN = CN + H2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-52.810	-0.242	-3.446	37.960
500	-52.630	-0.681	-3.685	22.199
1000	-53.283	-1.109	-4.333	10.698
1500	-53.670	-0.893	-4.757	6.780
2000	-53.889	-0.391	-4.950	4.806
2500	-53.841	0.205	-4.973	3.638
3000	-53.496	0.763	-4.885	2.829
3500	-52.887	1.198	-4.733	2.267
4000	-52.088	1.483	-4.552	1.851
4500	-51.140	1.635	-4.368	1.528
5000	-50.131	1.688	-4.192	1.275
5500	-49.089	1.683	-4.030	1.069
6000	-48.040	1.641	-3.887	0.900

PARAMETERS FOR KC

LOG A	B	C
0.210	-0.35	-52.810

STD ERROR OF ESTIMATE = 0.009

X110. CHO + HNO = CH2 + NO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	67.460	0.558	-2.727	-50.042
500	67.876	0.730	-2.372	-30.188
1000	67.913	0.421	-1.971	-15.289
1500	68.304	0.350	-1.818	-10.348
2000	68.580	0.319	-1.721	-7.870
2500	68.829	0.287	-1.653	-6.359
3000	69.062	0.254	-1.604	-5.382
3500	69.293	0.219	-1.567	-4.670
4000	69.516	0.180	-1.541	-4.135
4500	69.759	0.137	-1.522	-3.721
5000	69.991	0.094	-1.510	-3.389
5500	70.223	0.046	-1.502	-3.119
6000	70.451	-0.005	-1.501	-2.895

PARAMETERS FOR KC

LOG A	B	C
-1.086	0.17	67.460

STD ERROR OF ESTIMATE = 0.009

X111. CHO + HNO = CH2O + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-37.170	-0.954	-3.786	26.421
500	-37.087	-0.852	-4.282	15.274
1000	-37.460	0.001	-4.595	7.183
1500	-37.196	0.470	-4.494	4.437
2000	-36.788	0.696	-4.325	3.074
2500	-36.314	0.802	-4.155	2.285
3000	-35.802	0.844	-4.005	1.733
3500	-35.263	0.856	-3.873	1.356
4000	-34.713	0.853	-3.761	1.075
4500	-34.125	0.842	-3.661	0.857
5000	-33.532	0.832	-3.572	0.685
5500	-32.922	0.819	-3.492	0.544
6000	-32.300	0.800	-3.424	0.427

PARAMETERS FOR KC

LOG A	B	C
-0.788	-0.05	-37.170

STD ERROR OF ESTIMATE = 0.016

X112. CHO + HO = CH2 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	73.858	-0.147	-2.218	-54.620
500	74.130	0.121	-2.218	-32.890
1000	74.032	0.411	-2.037	-16.641
1500	74.478	0.539	-1.842	-11.253
2000	74.874	0.610	-1.678	-8.549
2500	75.297	0.698	-1.533	-6.898
3000	75.769	0.797	-1.396	-5.825
3500	76.301	0.876	-1.268	-5.042
4000	76.875	0.924	-1.148	-4.451
4500	77.505	0.936	-1.037	-3.991
5000	78.144	0.915	-0.940	-3.621
5500	78.786	0.867	-0.853	-3.318
6000	79.421	0.798	-0.781	-3.065

PARAMETERS FOR KC

LOG A	B	C
-0.894	0.12	73.858

STD ERROR OF ESTIMATE = 0.011

X113. CHO + HO = CH2O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	15.117	-1.738	-6.817	-12.567
500	15.133	-0.771	-7.504	-8.254
1000	15.090	0.999	-7.396	-4.914
1500	15.887	1.544	-6.863	-3.814
2000	16.808	1.667	-6.399	-3.236
2500	17.738	1.655	-6.026	-2.848
3000	18.652	1.603	-5.728	-2.610
3500	19.553	1.548	-5.485	-2.419
4000	20.437	1.499	-5.283	-2.271
4500	21.339	1.456	-5.108	-2.153
5000	22.231	1.415	-4.957	-2.054
5500	23.125	1.372	-4.823	-1.974
6000	24.015	1.318	-4.707	-1.905

PARAMETERS FOR KC

LOG A	B	C
-2.316	0.22	15.117

STD ERROR OF ESTIMATE = 0.023

X114. CHO + HO = CO + H2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-102.707	-0.446	-5.226	74.145
500	-102.555	-0.776	-5.537	43.615
1000	-103.214	-1.035	-6.201	21.201
1500	-103.549	-0.801	-6.582	13.648
2000	-103.769	-0.528	-6.775	9.857
2500	-103.886	-0.339	-6.871	7.599
3000	-103.926	-0.221	-6.921	6.057
3500	-103.903	-0.150	-6.950	4.968
4000	-103.844	-0.107	-6.967	4.151
4500	-103.728	-0.084	-6.977	3.512
5000	-103.591	-0.073	-6.986	3.001
5500	-103.429	-0.063	-6.992	2.581
6000	-103.241	-0.056	-6.998	2.231

PARAMETERS FOR KC

LOG A	B	C
-0.175	-0.35	-102.707

STD ERROR OF ESTIMATE = 0.009

X115. CHO + HO = CO2 + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-112.546	0.330	-15.266	79.163
500	-112.073	1.347	-14.784	45.754
1000	-111.516	1.382	-13.775	21.360
1500	-110.750	1.222	-13.256	13.239
2000	-110.035	1.213	-12.909	9.201
2500	-109.321	1.261	-12.633	6.815
3000	-108.579	1.312	-12.399	5.199
3500	-107.792	1.388	-12.191	4.066
4000	-106.950	1.490	-12.000	3.221
4500	-106.015	1.598	-11.818	2.566
5000	-105.014	1.707	-11.644	2.045
5500	-103.931	1.841	-11.474	1.621
6000	-102.760	1.972	-11.309	1.270

PARAMETERS FOR KC

LOG A	B	C
-4.797	0.51	-112.546

STD ERROR OF ESTIMATE = 0.011

X116. CHO + HO2 = CH2O + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-39.950	-1.126	-6.783	27.804
500	-39.882	-0.845	-7.322	15.832
1000	-40.164	0.303	-7.521	7.134
1500	-39.734	0.817	-7.286	4.197
2000	-39.140	1.109	-7.010	2.744
2500	-38.430	1.338	-6.736	1.906
3000	-37.614	1.527	-6.475	1.326
3500	-36.699	1.674	-6.228	0.931
4000	-35.711	1.782	-5.998	0.640
4500	-34.637	1.852	-5.783	0.418
5000	-33.526	1.892	-5.586	0.245
5500	-32.377	1.911	-5.403	0.104
6000	-31.204	1.908	-5.238	-0.009

PARAMETERS FOR KC

LOG A	B	C
-1.738	0.04	-39.950

STD ERROR OF ESTIMATE = 0.019

X117. CHO + HO2 = CO2 + H2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-165.852	0.292	-11.870	118.978
500	-165.495	0.345	-11.665	69.786
1000	-165.621	-0.019	-11.583	33.663
1500	-165.443	0.252	-11.550	21.580
2000	-165.113	0.623	-11.426	15.543
2500	-164.629	0.915	-11.253	11.951
3000	-164.017	1.134	-11.067	9.529
3500	-163.293	1.300	-10.879	7.818
4000	-162.484	1.440	-10.696	6.540
4500	-161.571	1.557	-10.519	5.547
5000	-160.590	1.664	-10.349	4.757
5500	-159.528	1.797	-10.184	4.112
6000	-158.379	1.931	-10.023	3.578

PARAMETERS FOR KC

LOG A	B	C
-2.841	0.08	-165.852

STD ERROR OF ESTIMATE = 0.011

X118. CHO + H2 = CH2 + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	92.842	0.275	5.332	-66.886
500	93.124	-0.193	5.356	-39.534
1000	92.652	-0.480	5.051	-19.161
1500	92.698	-0.185	4.918	-12.431
2000	92.756	-0.042	4.890	-9.067
2500	92.839	-0.026	4.884	-7.030
3000	92.919	-0.053	4.876	-5.703
3500	92.987	-0.130	4.863	-4.744
4000	93.017	-0.242	4.838	-4.025
4500	93.029	-0.369	4.803	-3.469
5000	92.988	-0.495	4.758	-3.025
5500	92.904	-0.626	4.705	-2.664
6000	92.777	-0.756	4.644	-2.365

PARAMETERS FOR KC

LOG A	B	C
1.518	-0.13	92.842

STD ERROR OF ESTIMATE = 0.009

X119. CHO + H2 = CH2O + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	17.150	-1.732	-5.220	-13.708
500	17.157	-0.822	-5.929	-8.794
1000	17.118	1.081	-5.822	-5.013
1500	17.982	1.677	-5.236	-3.764
2000	18.959	1.748	-4.738	-3.107
2500	19.905	1.640	-4.356	-2.673
3000	20.787	1.488	-4.072	-2.403
3500	21.598	1.298	-3.856	-2.191
4000	22.317	1.088	-3.697	-2.027
4500	22.971	0.875	-3.580	-1.898
5000	23.532	0.672	-3.499	-1.793
5500	24.016	0.472	-3.443	-1.708
6000	24.420	0.274	-3.412	-1.636

PARAMETERS FOR KC

LOG A	B	C
-2.037	0.25	17.150

STD ERROR OF ESTIMATE = 0.024

X120. CHO + H2 = CH3 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	85.379	-0.676	-0.024	-62.584
500	85.550	-0.354	-0.300	-37.458
1000	85.380	0.385	-0.325	-18.731
1500	85.873	0.967	-0.041	-12.520
2000	86.537	1.211	0.276	-9.397
2500	87.255	1.253	0.554	-7.488
3000	87.973	1.221	0.780	-6.238
3500	88.678	1.137	0.963	-5.327
4000	89.341	1.026	1.107	-4.640
4500	89.989	0.908	1.222	-4.104
5000	90.589	0.792	1.312	-3.673
5500	91.151	0.671	1.381	-3.321
6000	91.674	0.546	1.434	-3.027

PARAMETERS FOR KC

LOG A	B	C
-0.459	0.12	85.379

STD ERROR OF ESTIMATE = 0.018

X121. CHO + H2 + M = CH3O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-6.000	-6.198	-31.621	1.876
500	-6.762	-3.994	-34.329	0.066
1000	-7.866	-0.264	-35.769	-1.185
1500	-7.424	1.246	-35.539	-1.595
2000	-6.524	1.820	-35.088	-1.741
2500	-5.463	2.001	-34.657	-1.766
3000	-4.354	2.024	-34.290	-1.786
3500	-3.245	1.946	-33.982	-1.766
4000	-2.182	1.813	-33.732	-1.737
4500	-1.150	1.654	-33.526	-1.704
5000	-0.190	1.490	-33.360	-1.670
5500	0.710	1.320	-33.226	-1.649
6000	1.544	1.145	-33.119	-1.712

PARAMETERS FOR KC

LOG A	B	C
-4.292	0.58	-6.000

STD ERROR OF ESTIMATE = 0.042

X122. CHO + H2O = CH2 + HO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	146.148	0.313	1.936	-106.701
500	146.546	0.809	2.237	-63.566
1000	146.755	0.921	2.859	-31.464
1500	147.391	0.785	3.212	-20.772
2000	147.834	0.548	3.407	-15.409
2500	148.147	0.320	3.504	-12.166
3000	148.357	0.125	3.544	-10.033
3500	148.488	-0.042	3.551	-8.496
4000	148.551	-0.192	3.534	-7.344
4500	148.585	-0.328	3.504	-6.450
5000	148.564	-0.452	3.463	-5.737
5500	148.501	-0.582	3.415	-5.155
6000	148.396	-0.715	3.358	-4.673

PARAMETERS FOR KC

LOG A	B	C
-0.437	0.30	146.148

STD ERROR OF ESTIMATE = 0.010

X123. CHO + H2O = CH2O + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	32.340	-0.666	-2.629	-24.277
500	32.528	-0.157	-2.867	-14.844
1000	32.559	0.813	-2.625	-7.689
1500	33.179	1.063	-2.232	-5.322
2000	33.820	1.047	-1.925	-4.116
2500	34.420	0.960	-1.699	-3.362
3000	34.974	0.855	-1.535	-2.882
3500	35.488	0.756	-1.409	-2.523
4000	35.965	0.666	-1.316	-2.253
4500	36.443	0.588	-1.242	-2.041
5000	36.894	0.525	-1.183	-1.871
5500	37.338	0.462	-1.135	-1.733
6000	37.771	0.395	-1.099	-1.617

PARAMETERS FOR KC

LOG A	B	C
-1.281	0.21	32.340

STD ERROR OF ESTIMATE = 0.015

X124. CHO + H2O = CH3 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	83.618	-0.026	-3.386	-62.028
500	83.957	0.574	-3.237	-37.404
1000	84.229	1.090	-2.642	-18.986
1500	84.945	1.210	-2.170	-12.850
2000	85.667	1.243	-1.818	-9.759
2500	86.395	1.282	-1.536	-7.870
3000	87.145	1.323	-1.299	-6.632
3500	87.927	1.351	-1.092	-5.729
4000	88.727	1.359	-0.912	-5.048
4500	89.569	1.345	-0.752	-4.514
5000	90.408	1.312	-0.612	-4.086
5500	91.246	1.254	-0.489	-3.734
6000	92.074	1.177	-0.383	-3.439

PARAMETERS FOR KC

LOG A	B	C
-1.836	0.37	83.618

STD ERROR OF ESTIMATE = 0.013

X125. CHO + H2O = CH3O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	111.357	-2.094	-7.051	-83.164
500	111.385	-0.335	-7.726	-50.373
1000	111.777	2.103	-7.040	-25.968
1500	113.152	2.715	-6.040	-17.805
2000	114.646	2.779	-5.244	-13.674
2500	116.115	2.697	-4.631	-11.144
3000	117.534	2.583	-4.150	-9.469
3500	118.912	2.480	-3.758	-8.246
4000	120.252	2.396	-3.435	-7.321
4500	121.598	2.329	-3.156	-6.595
5000	122.921	2.274	-2.913	-6.010
5500	124.241	2.216	-2.699	-5.540
6000	125.550	2.146	-2.509	-5.232

PARAMETERS FOR KC

LOG A	B	C
-3.422	0.58	111.357

STD ERROR OF ESTIMATE = 0.029

X126. CHO + N = CN + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-8.473	0.898	2.008	6.648
500	-8.110	-0.015	2.248	4.033
1000	-8.636	-1.125	1.802	2.279
1500	-9.100	-1.163	1.319	1.613
2000	-9.498	-0.814	1.027	1.261
2500	-9.687	-0.313	0.898	1.059
3000	-9.622	0.169	0.884	0.893
3500	-9.334	0.516	0.940	0.786
4000	-8.909	0.682	1.021	0.707
4500	-8.404	0.682	1.102	0.646
5000	-7.924	0.555	1.169	0.599
5500	-7.513	0.347	1.214	0.560
6000	-7.196	0.094	1.232	0.527

PARAMETERS FOR KC

LOG A	B	C
1.346	-0.30	-8.473

STD ERROR OF ESTIMATE = 0.007

X127. CHO + N = CO + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-58.370	0.694	0.228	42.833
500	-58.035	-0.110	0.396	25.449
1000	-58.567	-1.051	-0.066	12.782
1500	-58.979	-1.071	-0.506	8.481
2000	-59.378	-0.951	-0.798	6.312
2500	-59.732	-0.857	-1.000	5.020
3000	-60.052	-0.815	-1.152	4.121
3500	-60.350	-0.832	-1.277	3.487
4000	-60.665	-0.908	-1.394	3.007
4500	-60.992	-1.037	-1.507	2.630
5000	-61.384	-1.206	-1.625	2.325
5500	-61.850	-1.399	-1.748	2.072
6000	-62.397	-1.603	-1.879	1.858

PARAMETERS FOR KC

LOG A	B	C
0.959	-0.31	-58.370

STD ERROR OF ESTIMATE = 0.010

X128. CHO + NO = CN + HO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	78.420	-0.096	-1.223	-57.748
500	78.702	0.090	-1.213	-34.666
1000	78.493	-0.247	-1.250	-17.428
1500	78.482	-0.264	-1.366	-11.733
2000	78.516	0.005	-1.411	-8.888
2500	78.716	0.422	-1.366	-7.161
3000	79.136	0.848	-1.251	-6.039
3500	79.761	1.185	-1.093	-5.220
4000	80.534	1.395	-0.920	-4.602
4500	81.423	1.491	-0.749	-4.118
5000	82.348	1.500	-0.591	-3.728
5500	83.284	1.450	-0.449	-3.408
6000	84.207	1.363	-0.327	-3.139

PARAMETERS FOR KC

LOG A	B	C
-0.097	-0.06	78.420

STD ERROR OF ESTIMATE = 0.008

X129. CHO + NO = CO + HNO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-33.197	-0.158	-4.069	23.447
500	-32.940	-0.081	-4.122	13.497
1000	-33.195	-0.223	-4.231	6.329
1500	-33.174	-0.208	-4.320	3.889
2000	-33.161	-0.177	-4.375	2.667
2500	-33.152	-0.181	-4.415	1.952
3000	-33.150	-0.210	-4.451	1.442
3500	-33.152	-0.250	-4.486	1.089
4000	-33.166	-0.294	-4.522	0.823
4500	-33.160	-0.338	-4.558	0.614
5000	-33.165	-0.380	-4.597	0.445
5500	-33.169	-0.420	-4.635	0.304
6000	-33.170	-0.461	-4.673	0.187

PARAMETERS FOR KC

LOG A	B	C
-0.668	-0.08	-33.197

STD ERROR OF ESTIMATE = 0.009

X130. CHO + NO = CO2 + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-34.622	0.438	-9.647	23.270
500	-34.163	1.116	-9.193	12.921
1000	-33.845	0.843	-8.500	5.537
1500	-33.291	0.881	-8.159	3.067
2000	-32.708	1.019	-7.887	1.849
2500	-32.072	1.132	-7.646	1.152
3000	-31.385	1.219	-7.433	0.661
3500	-30.645	1.287	-7.239	0.331
4000	-29.862	1.352	-7.064	0.087
4500	-29.008	1.413	-6.900	-0.099
5000	-28.111	1.476	-6.748	-0.246
5500	-27.155	1.564	-6.603	-0.365
6000	-26.132	1.653	-6.463	-0.461

PARAMETERS FOR KC

LOG A	B	C
-3.149	0.37	-34.622

STD ERROR OF ESTIMATE = 0.011

X131. CHO + NO2 = CO2 + HNO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-87.164	0.047	-7.207	62.319
500	-86.825	0.424	-7.056	36.408
1000	-86.779	0.481	-6.753	17.488
1500	-86.356	0.687	-6.520	11.156
2000	-85.859	0.852	-6.298	8.004
2500	-85.311	0.948	-6.096	6.144
3000	-84.722	1.005	-5.919	4.878
3500	-84.098	1.039	-5.761	3.992
4000	-83.449	1.068	-5.621	3.331
4500	-82.745	1.092	-5.493	2.818
5000	-82.017	1.118	-5.376	2.409
5500	-81.250	1.169	-5.267	2.076
6000	-80.434	1.221	-5.164	1.800

PARAMETERS FOR KC

LOG A	B	C
-2.192	0.20	-87.164

STD ERROR OF ESTIMATE = 0.012

X132. CHO + N2 = CN + HNO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	118.800	0.017	1.700	-86.707
500	119.095	0.171	1.745	-51.674
1000	119.019	0.150	1.879	-25.601
1500	119.210	0.119	1.928	-16.947
2000	119.416	0.306	1.982	-12.616
2500	119.748	0.655	2.086	-9.994
3000	120.272	1.035	2.239	-8.272
3500	120.983	1.338	2.424	-7.025
4000	121.826	1.525	2.616	-6.085
4500	122.775	1.603	2.801	-5.351
5000	123.752	1.594	2.970	-4.760
5500	124.731	1.527	3.120	-4.276
6000	125.687	1.418	3.248	-3.869

PARAMETERS FOR KC

LOG A	B	C
0.201	0.05	118.800

STD ERROR OF ESTIMATE = 0.009

X133. CHO + O = CO + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-85.484	0.626	-1.038	[illegible]
500	-85.160	-0.162	-0.900	[illegible]
1000	-85.745	-1.221	-1.430	[illegible].6
1500	-86.257	-1.282	-1.951	12.140
2000	-86.757	-1.148	-2.301	8.977
2500	-87.204	-1.034	-2.544	7.085
3000	-87.604	-0.969	-2.728	5.785
3500	-87.968	-0.942	-2.874	4.864
4000	-88.316	-0.940	-3.000	4.169
4500	-88.624	-0.952	-3.111	3.624
5000	-88.928	-0.963	-3.212	3.184
5500	-89.216	-0.973	-3.304	2.822
6000	-89.485	-0.979	-3.390	2.519

PARAMETERS FOR KC

LOG A	B	C
0.859	-0.37	-85.484

STD ERROR OF ESTIMATE = 0.010

X134. CHO + O = CO2 + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-110.513	0.336	-13.669	78.022
500	-110.049	1.296	-13.209	45.214
1000	-109.490	1.464	-12.201	21.261
1500	-108.855	1.355	-11.629	13.289
2000	-107.884	1.294	-11.248	9.330
2500	-107.154	1.246	-10.963	6.990
3000	-106.444	1.197	-10.743	5.406
3500	-105.747	1.138	-10.562	4.294
4000	-105.070	1.079	-10.414	3.465
4500	-104.383	1.017	-10.290	2.821
5000	-103.713	0.964	-10.186	2.306
5500	-103.040	0.941	-10.094	1.887
6000	-102.355	0.928	-10.014	1.539

PARAMETERS FOR KC

LOG A	B	C
-4.517	0.53	-110.513

STD ERROR OF ESTIMATE = 0.011

X135. CHO + O2 = CO + HO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-30.417	0.014	-1.072	22.064
500	-30.145	-0.088	-1.082	12.939
1000	-30.491	-0.525	-1.305	6.378
1500	-30.636	-0.555	-1.528	4.129
2000	-30.809	-0.590	-1.690	2.997
2500	-31.036	-0.717	-1.834	2.331
3000	-31.338	-0.893	-1.981	1.849
3500	-31.716	-1.068	-2.131	1.514
4000	-32.168	-1.223	-2.285	1.258
4500	-32.648	-1.348	-2.436	1.053
5000	-33.171	-1.440	-2.583	0.885
5500	-33.714	-1.512	-2.724	0.744
6000	-34.266	-1.569	-2.859	0.623

PARAMETERS FOR KC

LOG A	B	C
0.281	-0.18	-30.417

STD ERROR OF ESTIMATE = 0.010

X136. CHO + O2 = CO2 + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-93.562	0.752	-7.716	66.897
500	-93.085	1.033	-7.210	39.110
1000	-92.898	0.491	-6.687	18.840
1500	-92.530	0.498	-6.496	12.061
2000	-92.153	0.561	-6.341	8.683
2500	-91.779	0.537	-6.216	6.683
3000	-91.429	0.462	-6.127	5.321
3500	-91.106	0.382	-6.060	4.364
4000	-90.808	0.324	-6.014	3.647
4500	-90.491	0.293	-5.978	3.088
5000	-90.170	0.297	-5.946	2.641
5500	-89.813	0.348	-5.916	2.275
6000	-89.404	0.418	-5.884	1.970

PARAMETERS FOR KC

LOG A	B	C
-2.384	0.25	-93.562

STD ERROR OF ESTIMATE = 0.009

x137. CH2 + CH2O = CH4 + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-110.712	-1.247	-6.881	79.650
500	-110.975	-1.265	-7.555	46.856
1000	-111.372	-0.618	-8.229	22.556
1500	-111.630	-0.160	-8.387	14.431
2000	-111.627	0.144	-8.388	10.364
2500	-111.504	0.332	-8.335	7.925
3000	-111.310	0.443	-8.264	6.301
3500	-111.067	0.517	-8.189	5.145
4000	-110.795	0.573	-8.116	4.279
4500	-110.495	0.623	-8.046	3.608
5000	-110.171	0.669	-7.978	3.071
5500	-109.826	0.715	-7.913	2.635
6000	-109.456	0.761	-7.848	2.273

PARAMETERS FOR KC

LOG A	B	C
-0.867	-0.26	-110.712

STD ERROR OF ESTIMATE = 0.008

x138. CH2 + CH3O = CH2O + CH3

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-86.480	0.477	-0.934	63.189
500	-86.431	0.017	-0.797	37.605
1000	-86.490	-0.425	-0.961	18.709
1500	-86.798	-0.500	-1.151	12.304
2000	-87.045	-0.479	-1.295	9.228
2500	-87.279	-0.458	-1.398	7.324
3000	-87.506	-0.494	-1.481	6.052
3500	-87.733	-0.457	-1.551	5.140
4000	-87.963	-0.462	-1.612	4.453
4500	-88.195	-0.464	-1.667	3.919
5000	-88.426	-0.462	-1.716	3.491
5500	-88.656	-0.457	-1.760	3.150
6000	-88.882	-0.449	-1.800	2.953

PARAMETERS FOR KC

LOG A	B	C
0.163	-0.11	-86.480

STD ERROR OF ESTIMATE = 0.003

x139. CH2 + CH4 = CH3 + CH3

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-4.815	1.709	1.948	3.956
500	-4.466	1.552	2.847	2.575
1000	-4.007	0.128	3.443	1.644
1500	-4.164	-0.362	3.381	1.345
2000	-4.376	-0.453	3.258	1.189
2500	-4.606	-0.463	3.157	1.092
3000	-4.838	-0.467	3.072	1.024
3500	-5.072	-0.473	3.000	0.972
4000	-5.310	-0.476	2.937	0.931
4500	-5.548	-0.477	2.881	0.899
5000	-5.786	-0.473	2.831	0.871
5500	-6.021	-0.466	2.784	0.847
6000	-6.250	-0.454	2.745	0.827

PARAMETERS FOR KC

LOG A	B	C
0.088	0.17	-4.815

STD ERROR OF ESTIMATE = 0.011

x140. CH2 + CO2 = CH2O + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-50.663	-1.717	2.079	37.591
500	-51.078	-2.087	1.024	22.551
1000	-51.789	-1.124	-0.102	11.313
1500	-52.318	-0.775	-0.476	7.518
2000	-52.670	-0.652	-0.681	5.607
2500	-52.984	-0.614	-0.821	4.452
3000	-53.292	-0.625	-0.933	3.679
3500	-53.610	-0.652	-1.031	3.123
4000	-53.946	-0.689	-1.121	2.702
4500	-54.299	-0.725	-1.204	2.374
5000	-54.671	-0.760	-1.283	2.110
5500	-55.064	-0.816	-1.358	1.891
6000	-55.487	-0.877	-1.432	1.709

PARAMETERS FOR KC

LOG A	B	C
1.821	-0.52	-50.663

STD ERROR OF ESTIMATE = 0.006

X141. CH2 + H + M = CH3 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-109.630	-3.989	-27.335	78.773
500	-110.350	-3.155	-29.197	46.465
1000	-111.474	-1.770	-30.908	22.537
1500	-112.204	-0.931	-31.454	14.563
2000	-112.528	-0.407	-31.645	10.594
2500	-112.647	-0.097	-31.699	8.231
3000	-112.647	0.082	-31.699	6.669
3500	-112.576	0.191	-31.677	5.565
4000	-112.462	0.263	-31.647	4.743
4500	-112.316	0.315	-31.613	4.113
5000	-112.148	0.356	-31.577	3.614
5500	-111.962	0.391	-31.543	3.209
6000	-111.758	0.422	-31.507	2.877

PARAMETERS FOR KC

LOG A	B	C
-2.042	0.21	-109.630

STD ERROR OF ESTIMATE = 0.016

X142. CH2 + HN = CH3 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-34.577	-1.019	-6.622	23.904
500	-34.699	-0.213	-6.952	13.652
1000	-34.450	0.695	-6.740	6.074
1500	-34.103	0.941	-6.404	3.570
2000	-33.598	1.056	-6.117	2.335
2500	-33.056	1.102	-5.874	1.607
3000	-32.498	1.120	-5.672	1.129
3500	-31.927	1.157	-5.497	0.794
4000	-31.327	1.236	-5.337	0.547
4500	-30.572	1.362	-5.185	0.359
5000	-29.943	1.530	-5.033	0.211
5500	-29.119	1.723	-4.880	0.093
6000	-28.191	1.926	-4.721	-0.001

PARAMETERS FOR KC

LOG A	B	C
-2.077	0.19	-34.577

STD ERROR OF ESTIMATE = 0.011

X143. CH2 + HNO = CH2O + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-52.088	-1.121	-3.499	37.414
500	-52.301	-0.890	-4.047	21.975
1000	-52.439	-0.058	-4.371	10.521
1500	-52.435	0.314	-4.315	6.696
2000	-52.217	0.544	-4.193	4.789
2500	-51.904	0.699	-4.052	3.652
3000	-51.527	0.804	-3.915	2.898
3500	-51.103	0.885	-3.784	2.365
4000	-50.642	0.957	-3.663	1.966
4500	-50.147	1.028	-3.546	1.661
5000	-49.617	1.096	-3.434	1.419
5500	-49.050	1.168	-3.326	1.222
6000	-48.449	1.237	-3.222	1.061

PARAMETERS FOR KC

LOG A	B	C
-0.659	-0.07	-52.088

STD ERROR OF ESTIMATE = 0.010

X144. CH2 + HNO = CH3 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-59.750	-0.167	-2.325	43.290
500	-59.794	-0.242	-2.434	25.604
1000	-59.822	-0.133	-2.575	12.527
1500	-59.908	0.078	-2.590	8.162
2000	-59.815	0.282	-2.540	5.980
2500	-59.636	0.426	-2.459	4.675
3000	-59.400	0.515	-2.373	3.808
3500	-59.125	0.575	-2.288	3.192
4000	-58.826	0.622	-2.209	2.731
4500	-58.504	0.663	-2.134	2.375
5000	-58.162	0.704	-2.061	2.091
5500	-57.800	0.744	-1.993	1.861
6000	-57.418	0.784	-1.927	1.670

PARAMETERS FOR KC

LOG A	B	C
-0.449	-0.02	-59.750

STD ERROR OF ESTIMATE = 0.004

X145a CH2 + HNO = CH3O + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-0.185	-2.617	-9.187	-1.871
500	-0.569	-1.120	-10.202	-1.978
1000	-0.399	1.062	-10.150	-2.114
1500	0.260	1.755	-9.568	-2.128
2000	1.230	2.079	-9.015	-2.104
2500	2.319	2.259	-8.528	-2.065
3000	3.481	2.378	-8.106	-2.025
3500	4.703	2.499	-7.730	-1.981
4000	5.994	2.655	-7.388	-1.940
4500	7.376	2.852	-7.064	-1.899
5000	8.866	3.088	-6.751	-1.861
5500	10.487	3.348	-6.446	-1.835
6000	12.242	3.612	-6.143	-1.893

PARAMETERS FOR KC

LOG A	B	C
-2.900	0.24	-0.185

STD ERROR OF ESTIMATE = 0.024

X146. CH2 + HO = CH2O + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-75.692	-2.007	-10.552	53.178
500	-75.967	-0.629	-11.285	30.740
1000	-75.534	1.561	-10.873	14.148
1500	-74.716	1.862	-10.154	8.667
2000	-73.797	1.790	-9.628	5.960
2500	-72.934	1.666	-9.240	4.357
3000	-72.132	1.541	-8.948	3.300
3500	-71.389	1.428	-8.719	2.553
4000	-70.700	1.330	-8.535	1.998
4500	-70.058	1.244	-8.383	1.571
5000	-69.456	1.167	-8.257	1.232
5500	-68.886	1.098	-8.148	0.956
6000	-68.357	1.030	-8.056	0.729

PARAMETERS FOR KC

LOG A	B	C
-3.555	0.38	-75.692

STD ERROR OF ESTIMATE = 0.018

X147. CH2 + HO = CH3 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-7.463	-0.951	-5.356	4.302
500	-7.574	-0.161	-5.656	2.076
1000	-7.272	0.865	-5.378	0.430
1500	-6.825	1.152	-4.959	-0.089
2000	-6.219	1.253	-4.614	-0.330
2500	-5.584	1.279	-4.330	-0.458
3000	-4.946	1.274	-4.096	-0.535
3500	-4.309	1.267	-3.900	-0.583
4000	-3.676	1.268	-3.731	-0.615
4500	-3.040	1.277	-3.581	-0.635
5000	-2.399	1.287	-3.446	-0.648
5500	-1.753	1.297	-3.324	-0.657
6000	-1.103	1.302	-3.210	-0.662

PARAMETERS FOR KC

LOG A	B	C
-1.977	0.25	-7.463

STD ERROR OF ESTIMATE = 0.012

X148. CH2 + HO + M = CH3O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-98.842	-6.473	-36.953	68.762
500	-99.886	-3.801	-39.685	39.600
1000	-100.518	0.216	-40.820	17.976
1500	-100.122	1.431	-40.457	10.836
2000	-99.280	1.862	-39.978	7.326
2500	-98.302	2.027	-39.541	5.264
3000	-97.273	2.077	-39.166	3.917
3500	-96.232	2.076	-38.845	2.978
4000	-95.199	2.055	-38.570	2.288
4500	-94.179	2.023	-38.329	1.765
5000	-93.178	1.985	-38.118	1.355
5500	-92.194	1.946	-37.931	1.015
6000	-91.233	1.901	-37.763	0.653

PARAMETERS FOR KC

LOG A	B	C
-5.810	0.71	-98.842

STD ERROR OF ESTIMATE = 0.037

X149. CH2 + HO2 = CH2O + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-113.808	-0.979	-4.565	82.424
500	-114.018	-0.966	-5.104	48.722
1000	-114.196	-0.108	-5.484	23.775
1500	-114.212	0.278	-5.444	15.450
2000	-114.014	0.499	-5.332	11.293
2500	-113.727	0.640	-5.203	8.804
3000	-113.383	0.730	-5.079	7.151
3500	-113.000	0.798	-4.960	5.973
4000	-112.586	0.858	-4.850	5.091
4500	-112.142	0.916	-4.746	4.409
5000	-111.670	0.977	-4.646	3.866
5500	-111.163	1.044	-4.550	3.422
6000	-110.625	1.110	-4.457	3.056

PARAMETERS FOR KC

LOG A	B	C
-0.844	-0.08	-113.808

STD ERROR OF ESTIMATE = 0.010

X150. CH2 + HO2 = CH3 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-62.530	-0.339	-5.322	44.673
500	-62.589	-0.235	-5.474	26.162
1000	-62.526	0.169	-5.501	12.478
1500	-62.446	0.425	-5.382	7.922
2000	-62.167	0.695	-5.225	5.650
2500	-61.752	0.962	-5.040	4.296
3000	-61.212	1.198	-4.843	3.401
3500	-60.581	1.393	-4.643	2.767
4000	-59.824	1.551	-4.446	2.296
4500	-59.016	1.673	-4.256	1.936
5000	-58.156	1.764	-4.075	1.651
5500	-57.255	1.836	-3.904	1.421
6000	-56.322	1.892	-3.741	1.234

PARAMETERS FOR KC

LOG A	B	C
-1.399	0.06	-62.530

STD ERROR OF ESTIMATE = 0.008

X151. CH2 + HO2 = CH3O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-34.791	-2.407	-8.987	23.537
500	-35.161	-1.144	-9.963	13.193
1000	-34.978	1.182	-9.899	5.496
1500	-34.239	1.930	-9.252	2.967
2000	-33.188	2.231	-8.651	1.735
2500	-32.032	2.377	-8.135	1.022
3000	-30.823	2.458	-7.694	0.564
3500	-29.576	2.522	-7.309	0.250
4000	-28.299	2.588	-6.969	0.023
4500	-26.987	2.657	-6.660	-0.145
5000	-25.643	2.726	-6.376	-0.273
5500	-24.269	2.798	-6.114	-0.385
6000	-22.846	2.861	-5.867	-0.559

PARAMETERS FOR KC

LOG A	B	C
-2.984	0.28	-34.791

STD ERROR OF ESTIMATE = 0.026

X152. CH2 + H2 = CH3 + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-5.430	-0.945	-3.759	3.161
500	-5.550	-0.212	-4.081	1.536
1000	-5.244	0.947	-3.802	0.331
1500	-4.730	1.285	-3.332	-0.039
2000	-4.068	1.334	-2.953	-0.201
2500	-3.417	1.264	-2.660	-0.283
3000	-2.811	1.159	-2.440	-0.328
3500	-2.264	1.017	-2.271	-0.355
4000	-1.796	0.857	-2.145	-0.371
4500	-1.408	0.696	-2.053	-0.380
5000	-1.098	0.544	-1.988	-0.387
5500	-0.862	0.397	-1.944	-0.391
6000	-0.698	0.258	-1.915	-0.393

PARAMETERS FOR KC

LOG A	B	C
-1.697	0.27	-5.430

STD ERROR OF ESTIMATE = 0.013

x153. CH2 + H2 + M = CH4 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-110.245	-6.643	-33.042	77.978
500	-111.434	-4.919	-36.125	45.426
1000	-112.711	-0.951	-38.153	21.224
1500	-112.770	0.716	-38.167	13.179
2000	-112.220	1.380	-37.856	9.204
2500	-111.458	1.630	-37.516	6.856
3000	-110.620	1.708	-37.211	5.317
3500	-109.768	1.681	-36.948	4.238
4000	-108.948	1.596	-36.729	3.441
4500	-108.176	1.488	-36.547	2.834
5000	-107.460	1.373	-36.396	2.356
5500	-106.803	1.254	-36.271	1.971
6000	-106.206	1.134	-36.167	1.657

PARAMETERS FOR KC

LOG A	B	C
-3.878	0.32	-110.245

STD ERROR OF ESTIMATE = 0.041

x154. CH2 + H2O = CH2O + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-60.502	-0.941	-7.961	42.609
500	-60.596	0.036	-8.223	24.690
1000	-60.093	1.293	-7.676	11.472
1500	-59.519	1.248	-7.150	7.109
2000	-58.936	1.089	-6.815	4.951
2500	-58.419	0.986	-6.583	3.668
3000	-57.945	0.908	-6.411	2.821
3500	-57.499	0.886	-6.272	2.221
4000	-57.052	0.908	-6.154	1.772
4500	-56.586	0.957	-6.045	1.428
5000	-56.094	1.020	-5.941	1.154
5500	-55.566	1.088	-5.840	0.931
6000	-55.006	1.151	-5.743	0.748

PARAMETERS FOR KC

LOG A	B	C
-2.799	0.34	-60.502

STD ERROR OF ESTIMATE = 0.008

x155. CH2 + H2O = CH3 + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	9.760	0.121	-1.168	-7.408
500	9.821	0.453	-1.019	-4.514
1000	10.197	0.679	-0.605	-2.345
1500	10.467	0.671	-0.328	-1.597
2000	10.793	0.633	-0.140	-1.210
2500	11.098	0.584	-0.003	-0.972
3000	11.376	0.526	0.097	-0.807
3500	11.626	0.475	0.176	-0.687
4000	11.852	0.435	0.236	-0.597
4500	12.064	0.409	0.285	-0.523
5000	12.264	0.397	0.328	-0.465
5500	12.460	0.387	0.364	-0.416
6000	12.653	0.379	0.398	-0.374

PARAMETERS FOR KC

LOG A	B	C
-0.941	0.24	9.760

STD ERROR OF ESTIMATE = 0.003

x156. CH2 + H2O = CH3O + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	20.548	-2.363	-10.786	-17.419
500	20.285	-0.193	-11.507	-11.379
1000	21.153	2.665	-10.517	-6.906
1500	22.549	3.033	-9.331	-5.324
2000	24.041	2.902	-8.473	-4.478
2500	25.443	2.708	-7.845	-3.939
3000	26.750	2.521	-7.370	-3.559
3500	27.970	2.360	-6.992	-3.274
4000	29.115	2.227	-6.687	-3.052
4500	30.201	2.117	-6.431	-2.871
5000	31.234	2.026	-6.213	-2.724
5500	32.228	1.942	-6.024	-2.610
6000	33.178	1.858	-5.858	-2.598

PARAMETERS FOR KC

LOG A	B	C
-4.660	0.74	20.548

STD ERROR OF ESTIMATE = 0.024

X157. $CH2 + H2O = CH4 + O$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	7.112	-2.539	-8.472	-7.062
500	6.713	-1.260	-9.522	-5.013
1000	6.932	1.416	-9.424	-3.559
1500	7.806	2.185	-8.668	-3.031
2000	8.950	2.339	-8.012	-2.729
2500	10.120	2.326	-7.490	-2.522
3000	11.268	2.267	-7.071	-2.366
3500	12.389	2.215	-6.724	-2.242
4000	13.486	2.179	-6.432	-2.143
4500	14.572	2.163	-6.177	-2.057
5000	15.651	2.157	-5.949	-1.984
5500	16.728	2.150	-5.744	-1.920
6000	17.800	2.135	-5.557	-1.863

PARAMETERS FOR KC

LOG A	B	C
-3.008	0.32	7.112

STD ERROR OF ESTIMATE = 0.027

X158. $CH2 + N = CN + H2$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-101.315	0.623	-3.324	73.534
500	-101.234	0.178	-3.108	43.567
1000	-101.288	-0.645	-3.249	21.440
1500	-101.798	-0.978	-3.599	14.044
2000	-102.254	-0.772	-3.863	10.328
2500	-102.526	-0.287	-3.986	8.089
3000	-102.541	0.222	-3.992	6.596
3500	-102.321	0.646	-3.923	5.530
4000	-101.926	0.924	-3.817	4.732
4500	-101.433	1.051	-3.701	4.115
5000	-100.912	1.050	-3.589	3.624
5500	-100.414	0.973	-3.491	3.224
6000	-99.973	0.850	-3.412	2.892

PARAMETERS FOR KC

LOG A	B	C
-0.171	-0.17	-101.315

STD ERROR OF ESTIMATE = 0.008

X159. $CH2 + NO = CH2O + N$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-26.915	-1.973	-7.796	18.028
500	-27.206	-0.861	-8.565	10.023
1000	-27.067	0.770	-8.536	4.068
1500	-26.630	1.177	-8.129	2.104
2000	-26.000	1.318	-7.770	1.144
2500	-25.324	1.375	-7.467	0.584
3000	-24.625	1.409	-7.214	0.219
3500	-23.905	1.467	-6.993	-0.033
4000	-23.143	1.571	-6.791	-0.218
4500	-22.315	1.725	-6.597	-0.355
5000	-21.398	1.922	-6.406	-0.461
5500	-20.369	2.147	-6.213	-0.546
6000	-19.222	2.379	-6.016	-0.610

PARAMETERS FOR KC

LOG A	B	C
2.288	0.15	-26.915

STD ERROR OF ESTIMATE = 0.016

X160. $CH2 + NO = CN + H2O$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-67.728	-0.409	-3.159	48.953
500	-67.844	-0.719	-3.450	28.900
1000	-68.262	-1.168	-4.109	14.036
1500	-68.909	-1.049	-4.578	9.039
2000	-69.318	-0.543	-4.818	6.521
2500	-69.431	0.102	-4.870	5.005
3000	-69.221	0.723	-4.795	3.994
3500	-68.727	1.227	-4.644	3.276
4000	-68.017	1.587	-4.454	2.742
4500	-67.162	1.819	-4.253	2.332
5000	-66.216	1.952	-4.054	2.009
5500	-65.217	2.032	-3.864	1.747
6000	-64.189	2.078	-3.685	1.534

PARAMETERS FOR KC

LOG A	B	C
0.339	-0.36	-67.728

STD ERROR OF ESTIMATE = 0.002

X161. CH2 + NO2 = CH2O + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-104.630	-1.512	-1.059	76.463
500	-104.963	-1.582	-1.910	45.462
1000	-105.373	-0.420	-2.624	22.472
1500	-105.500	0.120	-2.676	14.785
2000	-105.368	0.377	-2.604	10.944
2500	-105.143	0.515	-2.502	8.644
3000	-104.864	0.590	-2.401	7.115
3500	-104.556	0.637	-2.306	6.026
4000	-104.229	0.673	-2.220	5.210
4500	-103.884	0.705	-2.139	4.578
5000	-103.523	0.738	-2.062	4.074
5500	-103.145	0.773	-1.990	3.663
6000	-102.751	0.805	-1.923	3.322

PARAMETERS FOR KC

LOG A	B	C
0.297	-0.23	-104.630

STD ERROR OF ESTIMATE = 0.013

X162. CH2 + N2O = CH2O + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-137.910	-2.077	-0.839	100.905
500	-138.393	-2.426	-2.070	60.039
1000	-139.259	-1.373	-3.412	29.705
1500	-139.873	-0.870	-3.858	19.535
2000	-140.241	-0.628	-4.073	14.434
2500	-140.520	-0.499	-4.197	11.367
3000	-140.750	-0.431	-4.281	9.318
3500	-140.954	-0.387	-4.344	7.853
4000	-141.139	-0.353	-4.394	6.751
4500	-141.308	-0.322	-4.434	5.894
5000	-141.461	-0.286	-4.466	5.208
5500	-141.592	-0.244	-4.491	4.644
6000	-141.704	-0.198	-4.511	4.176

PARAMETERS FOR KC

LOG A	B	C
1.394	-0.61	-137.910

STD ERROR OF ESTIMATE = 0.008

X163. CH2 + O + M = CH2O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-177.859	-5.045	-32.531	127.649
500	-178.743	-3.623	-34.826	75.129
1000	-179.736	-1.074	-36.405	36.255
1500	-180.095	-0.221	-36.649	23.319
2000	-180.106	0.130	-36.659	16.884
2500	-179.997	0.290	-36.609	13.046
3000	-179.833	0.349	-36.551	10.504
3500	-179.656	0.352	-36.496	8.701
4000	-179.486	0.325	-36.451	7.356
4500	-179.334	0.282	-36.415	6.319
5000	-179.205	0.236	-36.388	5.494
5500	-179.097	0.192	-36.367	4.822
6000	-179.012	0.150	-36.353	4.268

PARAMETERS FOR KC

LOG A	B	C
-3.670	0.34	-177.859

STD ERROR OF ESTIMATE = 0.022

X164. CH2 + O = CO + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-178.326	0.351	-6.370	129.321
500	-178.284	0.031	-6.256	76.559
1000	-178.397	-0.741	-6.481	37.587
1500	-178.955	-1.097	-6.869	24.571
2000	-179.513	-1.106	-7.191	18.044
2500	-180.043	-1.008	-7.428	14.115
3000	-180.523	-0.916	-7.604	11.488
3500	-180.955	-0.812	-7.737	9.608
4000	-181.333	-0.698	-7.838	8.194
4500	-181.653	-0.583	-7.914	7.093
5000	-181.916	-0.468	-7.970	6.209
5500	-182.120	-0.347	-8.009	5.486
6000	-182.262	-0.223	-8.034	4.884

PARAMETERS FOR KC

LOG A	B	C
-0.658	-0.24	-178.326

STD ERROR OF ESTIMATE = 0.010

X165. CH2 + O2 = CH2O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-58.741	-1.591	-4.599	42.053
500	-59.003	-0.892	-5.286	24.636
1000	-58.942	0.588	-5.359	11.727
1500	-58.591	1.005	-5.021	7.439
2000	-58.066	1.057	-4.721	5.313
2500	-57.559	0.957	-4.493	4.050
3000	-57.117	0.806	-4.332	3.215
3500	-56.748	0.672	-4.217	2.623
4000	-56.438	0.575	-4.135	2.180
4500	-56.166	0.520	-4.071	1.838
5000	-55.913	0.500	-4.017	1.567
5500	-55.661	0.505	-3.970	1.344
6000	-55.406	0.520	-3.926	1.160

PARAMETERS FOR KC

LOG A	B	C
-1.422	0.09	-58.741

STD ERROR OF ESTIMATE = 0.014

X166. CH2 + O2 = CO + H2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-176.565	-0.299	-3.008	128.765
500	-176.691	-0.897	-3.319	76.505
1000	-177.246	-1.446	-4.164	37.842
1500	-178.027	-1.340	-4.740	24.901
2000	-178.643	-1.138	-5.097	18.406
2500	-179.183	-1.037	-5.338	14.497
3000	-179.695	-1.018	-5.525	11.882
3500	-180.204	-1.026	-5.682	10.010
4000	-180.719	-1.031	-5.819	8.602
4500	-181.233	-1.020	-5.940	7.503
5000	-181.735	-0.988	-6.046	6.622
5500	-182.215	-0.930	-6.139	5.899
6000	-182.662	-0.854	-6.217	5.296

PARAMETERS FOR KC

LOG A	B	C
0.718	-0.48	-176.565

STD ERROR OF ESTIMATE = 0.004

X167. CH2 + O2 = CO2 + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-186.404	0.477	-13.048	133.783
500	-186.209	1.226	-12.566	78.644
1000	-185.550	0.971	-11.738	38.001
1500	-185.228	0.683	-11.414	24.492
2000	-184.909	0.603	-11.231	17.750
2500	-184.618	0.563	-11.100	13.713
3000	-184.348	0.515	-11.003	11.024
3500	-184.093	0.512	-10.923	9.108
4000	-183.825	0.566	-10.852	7.672
4500	-183.540	0.662	-10.781	6.557
5000	-183.158	0.792	-10.704	5.666
5500	-182.717	0.974	-10.621	4.939
6000	-182.181	1.174	-10.528	4.335

PARAMETERS FOR KC

LOG A	B	C
-3.902	0.38	-186.404

STD ERROR OF ESTIMATE = 0.002

X168. CH2O + M = CO + H2 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-0.467	5.396	26.161	1.672
500	0.459	3.654	28.570	1.430
1000	1.339	0.333	29.924	1.332
1500	1.140	-0.876	29.780	1.252
2000	0.593	-1.236	29.468	1.160
2500	-0.046	-1.298	29.181	1.069
3000	-0.690	-1.265	28.947	0.984
3500	-1.299	-1.164	28.759	0.907
4000	-1.847	-1.023	28.613	0.838
4500	-2.319	-0.865	28.501	0.774
5000	-2.711	-0.704	28.418	0.715
5500	-3.023	-0.539	28.358	0.664
6000	-3.250	-0.373	28.319	0.616

PARAMETERS FOR KC

LOG A	B	C
3.011	-0.58	-0.467

STD ERROR OF ESTIMATE = 0.032

X169. CH2O + CH2O = CH4 + CO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-60.049	0.470	-8.960	42.059
500	-59.897	0.822	-8.579	24.305
1000	-59.583	0.506	-8.127	11.243
1500	-59.312	0.615	-7.911	6.913
2000	-58.957	0.796	-7.707	4.757
2500	-58.521	0.946	-7.514	3.473
3000	-58.018	1.068	-7.331	2.622
3500	-57.457	1.169	-7.158	2.022
4000	-56.849	1.262	-6.995	1.577
4500	-56.196	1.348	-6.842	1.234
5000	-55.500	1.429	-6.695	0.961
5500	-54.762	1.531	-6.555	0.744
6000	-53.969	1.638	-6.416	0.564

PARAMETERS FOR KC

LOG A	B	C
-2.688	0.26	-60.049

STD ERROR OF ESTIMATE = 0.002

X170. CH2O + CH4 = CH3 + CH3O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	81.665	1.232	2.882	-59.233
500	81.965	1.535	3.644	-35.030
1000	82.483	0.553	4.404	-17.065
1500	82.634	0.138	4.532	-11.049
2000	82.669	0.026	4.553	-8.039
2500	82.673	-0.005	4.555	-6.232
3000	82.668	-0.013	4.553	-5.028
3500	82.661	-0.016	4.551	-4.168
4000	82.653	-0.014	4.549	-3.522
4500	82.647	-0.013	4.548	-3.020
5000	82.640	-0.011	4.547	-2.620
5500	82.635	-0.009	4.544	-2.303
6000	82.632	-0.005	4.545	-2.126

PARAMETERS FOR KC

LOG A	B	C
-0.074	0.28	81.665

STD ERROR OF ESTIMATE = 0.008

X171. CH2O + H = CH3 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	68.229	1.056	5.196	-48.876
500	68.393	0.468	5.629	-28.664
1000	68.262	-0.696	5.497	-13.718
1500	67.891	-0.710	5.195	-8.756
2000	67.578	-0.537	5.014	-6.290
2500	67.350	-0.387	4.910	-4.815
3000	67.186	-0.267	4.852	-3.835
3500	67.080	-0.161	4.819	-3.136
4000	67.024	-0.062	4.804	-2.613
4500	67.018	0.033	4.802	-2.206
5000	67.057	0.120	4.811	-1.880
5500	67.135	0.199	4.824	-1.613
6000	67.254	0.272	4.846	-1.391

PARAMETERS FOR KC

LOG A	B	C
1.578	-0.12	68.229

STD ERROR OF ESTIMATE = 0.006

X172. CH2O + H + M = CH3O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-23.150	-4.466	-26.401	15.584
500	-23.919	-3.172	-28.400	8.860
1000	-24.984	-1.345	-29.947	3.828
1500	-25.406	-0.431	-30.303	2.169
2000	-25.483	0.072	-30.350	1.366
2500	-25.368	0.361	-30.301	0.907
3000	-25.141	0.536	-30.218	0.617
3500	-24.843	0.648	-30.126	0.425
4000	-24.499	0.725	-30.035	0.290
4500	-24.121	0.779	-29.946	0.194
5000	-23.722	0.818	-29.861	0.123
5500	-23.306	0.848	-29.783	0.059
6000	-22.876	0.871	-29.707	-0.076

PARAMETERS FOR KC

LOG A	B	C
-2.255	0.33	-23.150

STD ERROR OF ESTIMATE = 0.019

X173. CH2O + HN = CH3 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-7.662	0.954	1.174	5.876
500	-7.493	0.648	1.613	3.629
1000	-7.383	-0.075	1.796	2.006
1500	-7.473	-0.236	1.725	1.466
2000	-7.598	-0.262	1.653	1.191
2500	-7.732	-0.273	1.593	1.023
3000	-7.873	-0.289	1.542	0.910
3500	-8.022	-0.310	1.496	0.827
4000	-8.184	-0.335	1.454	0.765
4500	-8.357	-0.363	1.412	0.714
5000	-8.545	-0.392	1.373	0.672
5500	-8.750	-0.424	1.333	0.639
6000	-8.969	-0.453	1.295	0.609

PARAMETERS FOR KC

LOG A	B	C
0.210	0.04	-7.662

STD ERROR OF ESTIMATE = 0.005

X174. CH2O + HN = CH3O + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	51.903	-1.496	-5.688	-39.285
500	51.732	-0.230	-6.155	-23.953
1000	52.040	1.120	-5.779	-12.635
1500	52.695	1.441	-5.253	-8.824
2000	53.447	1.535	-4.822	-6.893
2500	54.223	1.560	-4.476	-5.717
3000	55.008	1.574	-4.191	-4.923
3500	55.806	1.614	-3.946	-4.346
4000	56.636	1.698	-3.725	-3.906
4500	57.523	1.826	-3.518	-3.560
5000	58.483	1.992	-3.317	-3.280
5500	59.537	2.180	-3.120	-3.057
6000	60.691	2.375	-2.921	-2.954

PARAMETERS FOR KC

LOG A	B	C
-2.240	0.31	51.903

STD ERROR OF ESTIMATE = 0.014

X175. CH2O + HNO = CH3 + NO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	44.880	1.345	-1.266	-33.173
500	45.169	1.340	-0.524	-19.858
1000	45.551	0.287	0.049	-9.945
1500	45.592	-0.042	0.086	-6.623
2000	45.553	-0.095	0.064	-4.964
2500	45.507	-0.089	0.043	-3.969
3000	45.464	-0.075	0.028	-3.307
3500	45.431	-0.062	0.018	-2.834
4000	45.403	-0.051	0.011	-2.479
4500	45.380	-0.042	0.005	-2.203
5000	45.361	-0.034	0.001	-1.983
5500	45.345	-0.029	-0.003	-1.802
6000	45.333	-0.021	-0.004	-1.652

PARAMETERS FOR KC

LOG A	B	C
-0.746	0.20	44.880

STD ERROR OF ESTIMATE = 0.008

X176. CH2O + HNO = CH3O + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	26.730	-0.644	-1.391	-19.899
500	26.637	-0.259	-1.637	-12.001
1000	26.668	0.292	-1.614	-6.182
1500	26.890	0.578	-1.439	-4.232
2000	27.230	0.761	-1.245	-3.248
2500	27.643	0.884	-1.061	-2.649
3000	28.106	0.969	-0.892	-2.244
3500	28.608	1.032	-0.737	-1.948
4000	29.137	1.084	-0.597	-1.722
4500	29.691	1.127	-0.467	-1.544
5000	30.264	1.166	-0.345	-1.400
5500	30.856	1.201	-0.233	-1.289
6000	31.464	1.233	-0.127	-1.283

PARAMETERS FOR KC

LOG A	B	C
-0.612	0.08	26.730

STD ERROR OF ESTIMATE = 0.008

X177. CH2O + HO = CH3 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	51.278	0.640	-0.757	-37.751
500	51.429	0.731	-0.370	-22.560
1000	51.670	0.277	-0.017	-11.297
1500	51.766	0.147	0.062	-7.528
2000	51.847	0.196	0.107	-5.643
2500	51.975	0.322	0.163	-4.508
3000	52.171	0.468	0.236	-3.750
3500	52.439	0.595	0.317	-3.206
4000	52.762	0.693	0.404	-2.795
4500	53.126	0.757	0.490	-2.473
5000	53.514	0.787	0.571	-2.215
5500	53.908	0.792	0.646	-2.001
6000	54.303	0.782	0.716	-1.822

PARAMETERS FOR KC

LOG A	B	C
-0.555	0.15	51.278

STD ERROR OF ESTIMATE = 0.002

X178. CH2O + HO = CH3O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	79.017	-1.428	-4.422	-58.887
500	78.857	-0.178	-4.859	-35.529
1000	79.218	1.290	-4.415	-18.279
1500	79.973	1.652	-3.808	-12.483
2000	80.826	1.732	-3.319	-9.558
2500	81.695	1.737	-2.932	-7.782
3000	82.560	1.728	-2.615	-6.587
3500	83.424	1.724	-2.349	-5.723
4000	84.287	1.730	-2.119	-5.068
4500	85.155	1.741	-1.914	-4.554
5000	86.027	1.749	-1.730	-4.139
5500	86.903	1.754	-1.564	-3.807
6000	87.779	1.751	-1.410	-3.615

PARAMETERS FOR KC

LOG A	B	C
-2.140	0.37	79.017

STD ERROR OF ESTIMATE = 0.015

X179. CH2O + HO2 = CH3O + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	23.950	-0.816	-4.388	-18.516
500	23.842	-0.252	-4.677	-11.443
1000	23.964	0.594	-4.540	-6.231
1500	24.352	0.925	-4.231	-4.472
2000	24.878	1.174	-3.930	-3.578
2500	25.527	1.420	-3.642	-3.028
3000	26.294	1.652	-3.362	-2.651
3500	27.172	1.850	-3.092	-2.373
4000	28.139	2.013	-2.834	-2.157
4500	29.179	2.137	-2.589	-1.983
5000	30.270	2.226	-2.359	-1.840
5500	31.401	2.293	-2.144	-1.729
6000	32.560	2.341	-1.941	-1.719

PARAMETERS FOR KC

LOG A	B	C
-1.562	0.18	23.950

STD ERROR OF ESTIMATE = 0.011

X180. CH2O + H2 = CH3 + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	70.262	1.062	6.793	-50.017
500	70.417	0.417	7.204	-29.204
1000	70.290	-0.614	7.071	-13.817
1500	69.986	-0.577	6.822	-8.706
2000	69.729	-0.456	6.675	-6.161
2500	69.517	-0.402	6.580	-4.640
3000	69.321	-0.382	6.508	-3.628
3500	69.125	-0.411	6.448	-2.908
4000	68.904	-0.473	6.390	-2.369
4500	68.650	-0.548	6.330	-1.951
5000	68.358	-0.623	6.269	-1.619
5500	68.026	-0.701	6.204	-1.347
6000	67.659	-0.772	6.141	-1.122

PARAMETERS FOR KC

LOG A	B	C
1.857	-0.10	70.262

STD ERROR OF ESTIMATE = 0.005

X181. CH2O + H2 = CH3O + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	81.050	-1.422	-2.825	-60.028
500	80.881	-0.229	-3.284	-36.069
1000	81.246	1.372	-2.841	-18.378
1500	82.068	1.785	-2.181	-12.433
2000	82.977	1.813	-1.658	-9.429
2500	83.862	1.722	-1.262	-7.607
3000	84.695	1.613	-0.959	-6.380
3500	85.469	1.474	-0.720	-5.495
4000	86.167	1.319	-0.533	-4.824
4500	86.787	1.160	-0.386	-4.299
5000	87.328	1.006	-0.272	-3.878
5500	87.794	0.854	-0.184	-3.541
6000	88.184	0.707	-0.115	-3.346

PARAMETERS FOR KC

LOG A	B	C
-1.860	0.39	81.050

STD ERROR OF ESTIMATE = 0.016

X182. CH2O + H2 = CH4 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	67.614	-1.598	-0.511	-49.671
500	67.309	-1.296	-1.299	-29.703
1000	67.025	0.123	-1.748	-15.031
1500	67.325	0.937	-1.518	-10.140
2000	67.886	1.250	-1.197	-7.680
2500	68.539	1.340	-0.907	-6.190
3000	69.213	1.359	-0.660	-5.187
3500	69.888	1.329	-0.452	-4.463
4000	70.538	1.271	-0.278	-3.915
4500	71.158	1.206	-0.132	-3.485
5000	71.745	1.137	-0.008	-3.138
5500	72.294	1.062	0.096	-2.851
6000	72.806	0.984	0.186	-2.611

PARAMETERS FOR KC

LOG A	B	C
-0.206	-0.02	67.614

STD ERROR OF ESTIMATE = 0.018

X183. CH2O + H2O = CH3 + HO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	123.568	1.100	3.397	-89.832
500	123.839	1.419	4.085	-53.236
1000	124.393	0.787	4.879	-26.120
1500	124.679	0.393	5.116	-17.047
2000	124.807	0.134	5.192	-12.503
2500	124.825	-0.056	5.200	-9.776
3000	124.759	-0.204	5.176	-7.958
3500	124.626	-0.323	5.136	-6.660
4000	124.438	-0.423	5.086	-5.688
4500	124.206	-0.507	5.031	-4.932
5000	123.934	-0.580	4.974	-4.331
5500	123.623	-0.657	4.914	-3.838
6000	123.278	-0.731	4.855	-3.430

PARAMETERS FOR KC

LOG A	B	C
-0.097	0.33	123.568

STD ERROR OF ESTIMATE = 0.007

X184. CH2O + H2O = CH3O + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	96.240	-0.356	-0.234	-70.597
500	96.252	0.436	-0.222	-42.119
1000	96.687	1.104	0.356	-21.054
1500	97.265	1.171	0.823	-13.991
2000	97.838	1.112	1.155	-10.438
2500	98.377	1.042	1.395	-8.296
3000	98.882	0.980	1.578	-6.859
3500	99.359	0.932	1.727	-5.827
4000	99.815	0.897	1.848	-5.050
4500	100.259	0.873	1.952	-4.442
5000	100.690	0.859	2.044	-3.956
5500	101.116	0.844	2.124	-3.566
6000	101.535	0.828	2.198	-3.327

PARAMETERS FOR KC

LOG A	B	C
-1.105	0.36	96.240

STD ERROR OF ESTIMATE = 0.006

X185. $CH2O + H2O = CH4 + O2$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	65.853	-0.948	-3.873	-49.115
500	65.716	-0.368	-4.236	-29.649
1000	65.874	0.828	-4.065	-15.286
1500	66.397	1.180	-3.647	-10.470
2000	67.016	1.282	-3.291	-8.042
2500	67.679	1.369	-2.997	-6.572
3000	68.385	1.461	-2.739	-5.581
3500	69.137	1.543	-2.507	-4.865
4000	69.924	1.604	-2.297	-4.323
4500	70.738	1.643	-2.106	-3.895
5000	71.564	1.657	-1.932	-3.551
5500	72.389	1.645	-1.774	-3.264
6000	73.206	1.615	-1.631	-3.023

PARAMETERS FOR KC

LOG A	B	C
-1.586	0.22	65.853

STD ERROR OF ESTIMATE = 0.012

X186. $CH2O + N = CN + H2O$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-40.813	1.564	4.637	30.925
500	-40.638	0.142	5.115	18.877
1000	-41.195	-1.938	4.427	9.968
1500	-42.279	-2.226	3.551	6.935
2000	-43.318	-1.861	2.952	5.377
2500	-44.107	-1.273	2.597	4.421
3000	-44.596	-0.686	2.419	3.775
3500	-44.822	-0.240	2.349	3.309
4000	-44.874	0.016	2.337	2.960
4500	-44.847	0.094	2.344	2.687
5000	-44.818	0.030	2.352	2.470
5500	-44.848	-0.115	2.349	2.293
6000	-44.967	-0.301	2.331	2.144

PARAMETERS FOR KC

LOG A	B	C
2.627	-0.52	-40.813

STD ERROR OF ESTIMATE = 0.016

X187. $CH2O + O = CO + H2O$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-117.824	1.292	1.591	86.712
500	-117.688	-0.005	1.967	51.869
1000	-118.304	-2.034	1.195	26.115
1500	-119.436	-2.345	0.281	17.462
2000	-120.577	-2.195	-0.376	13.093
2500	-121.624	-1.994	-0.845	10.447
3000	-122.578	-1.824	-1.193	8.667
3500	-123.456	-1.698	-1.465	7.387
4000	-124.281	-1.606	-1.684	6.422
4500	-125.067	-1.540	-1.869	5.665
5000	-125.822	-1.488	-2.029	5.055
5500	-126.554	-1.435	-2.169	4.555
6000	-127.256	-1.374	-2.291	4.136

PARAMETERS FOR KC

LOG A	B	C
2.140	-0.58	-117.824

STD ERROR OF ESTIMATE = 0.018

X188. $CH2O + O = CO2 + H2$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-127.663	2.068	-8.449	91.730
500	-127.206	2.118	-7.280	54.008
1000	-126.608	0.383	-6.379	26.274
1500	-126.637	-0.322	-6.393	17.053
2000	-126.843	-0.454	-6.510	12.437
2500	-127.059	-0.394	-6.607	9.663
3000	-127.231	-0.291	-6.671	7.809
3500	-127.345	-0.160	-6.706	6.485
4000	-127.387	-0.009	-6.717	5.492
4500	-127.354	0.142	-6.710	4.719
5000	-127.245	0.292	-6.687	4.099
5500	-127.056	0.469	-6.651	3.595
6000	-126.775	0.654	-6.602	3.175

PARAMETERS FOR KC

LOG A	B	C
-2.480	0.28	-127.663

STD ERROR OF ESTIMATE = 0.016

X189. CH2O + O2 = CO2 + H2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-125.902	1.418	-5.087	91.174
500	-125.613	1.190	-4.343	53.954
1000	-125.457	-0.322	-4.062	26.529
1500	-125.709	-0.565	-4.264	17.383
2000	-125.973	-0.486	-4.416	12.799
2500	-126.199	-0.423	-4.517	10.045
3000	-126.403	-0.393	-4.592	8.203
3500	-126.594	-0.374	-4.651	6.887
4000	-126.773	-0.342	-4.698	5.900
4500	-126.934	-0.295	-4.736	5.129
5000	-127.064	-0.228	-4.763	4.512
5500	-127.151	-0.114	-4.781	4.008
6000	-127.175	0.023	-4.785	3.587

PARAMETERS FOR KC

LOG A	B	C
-1.102	0.04	-125.902

STD ERROR OF ESTIMATE = 0.010

X190. CH3 + CO2 = CH3O + CO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	35.817	-2.194	3.013	-25.598
500	35.353	-2.104	1.821	-15.054
1000	34.701	-0.699	0.859	-7.396
1500	34.480	-0.275	0.675	-4.876
2000	34.375	-0.173	0.614	-3.621
2500	34.295	-0.156	0.577	-2.872
3000	34.214	-0.171	0.548	-2.373
3500	34.123	-0.195	0.520	-2.017
4000	34.017	-0.227	0.491	-1.751
4500	33.896	-0.261	0.463	-1.545
5000	33.755	-0.298	0.433	-1.381
5500	33.592	-0.359	0.402	-1.259
6000	33.395	-0.428	0.368	-1.244

PARAMETERS FOR KC

LOG A	B	C
1.658	-0.41	35.817

STD ERROR OF ESTIMATE = 0.009

X191. CH3 + H + M = CH4 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-104.815	-5.698	-29.283	74.817
500	-105.884	-4.707	-32.044	43.890
1000	-107.467	-1.898	-34.351	20.893
1500	-108.040	-0.569	-34.835	13.218
2000	-108.152	0.046	-34.903	9.405
2500	-108.041	0.366	-34.856	7.139
3000	-107.809	0.549	-34.771	5.645
3500	-107.504	0.664	-34.677	4.593
4000	-107.152	0.739	-34.584	3.812
4500	-106.768	0.792	-34.494	3.214
5000	-106.362	0.829	-34.408	2.743
5500	-105.941	0.857	-34.327	2.362
6000	-105.508	0.876	-34.252	2.050

PARAMETERS FOR KC

LOG A	B	C
-2.180	0.04	-104.815

STD ERROR OF ESTIMATE = 0.028

X192. CH3 + HN = CH4 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-29.762	-2.728	-8.570	19.948
500	-30.233	-1.765	-9.799	11.077
1000	-30.443	0.567	-10.183	4.430
1500	-29.939	1.303	-9.785	2.225
2000	-29.222	1.509	-9.375	1.146
2500	-28.450	1.565	-9.031	0.515
3000	-27.660	1.587	-8.744	0.105
3500	-26.855	1.630	-8.497	-0.178
4000	-26.017	1.712	-8.274	-0.384
4500	-25.124	1.839	-8.066	-0.540
5000	-24.157	2.003	-7.864	-0.660
5500	-23.098	2.189	-7.664	-0.754
6000	-21.941	2.380	-7.466	-0.828

PARAMETERS FOR KC

LOG A	B	C
-2.166	0.02	-29.762

STD ERROR OF ESTIMATE = 0.023

X193. $CH_3 + HNO = CH_3O + HN$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	34.392	-1.598	-2.565	-25.775
500	34.130	-0.907	-3.250	-15.630
1000	34.051	0.367	-3.410	-8.188
1500	34.363	0.814	-3.164	-5.698
2000	34.828	1.023	-2.898	-4.439
2500	35.375	1.157	-2.654	-3.672
3000	35.979	1.258	-2.434	-3.154
3500	36.630	1.342	-2.233	-2.775
4000	37.321	1.419	-2.051	-2.487
4500	38.048	1.490	-1.879	-2.258
5000	38.809	1.558	-1.718	-2.072
5500	39.606	1.625	-1.566	-1.928
6000	40.433	1.686	-1.422	-1.892

PARAMETERS FOR KC

LOG A	B	C
-0.822	0.04	34.392

STD ERROR OF ESTIMATE = 0.013

X194. $CH_3 + HNO = CH_4 + NO$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-54.935	-1.876	-4.273	39.334
500	-55.328	-1.794	-5.281	23.029
1000	-55.815	-0.261	-6.018	10.883
1500	-55.744	0.440	-5.971	6.817
2000	-55.439	0.735	-5.798	4.791
2500	-55.030	0.889	-5.616	3.583
3000	-54.562	0.982	-5.445	2.784
3500	-54.053	1.048	-5.288	2.220
4000	-53.516	1.098	-5.146	1.800
4500	-52.956	1.140	-5.015	1.476
5000	-52.376	1.177	-4.892	1.220
5500	-51.779	1.210	-4.777	1.014
6000	-51.168	1.238	-4.672	0.843

PARAMETERS FOR KC

LOG A	B	C
-0.537	-0.20	-54.935

STD ERROR OF ESTIMATE = 0.016

X195. $CH_3 + HO = CH_3O + H$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	10.788	-2.484	-9.618	-10.011
500	10.464	-0.646	-10.488	-6.865
1000	10.956	1.986	-9.912	-4.561
1500	12.082	2.362	-9.003	-3.727
2000	13.248	2.269	-8.333	-3.268
2500	14.345	2.124	-7.842	-2.967
3000	15.374	1.995	-7.467	-2.752
3500	16.344	1.885	-7.168	-2.587
4000	17.263	1.792	-6.923	-2.455
4500	18.137	1.708	-6.716	-2.348
5000	18.970	1.629	-6.541	-2.259
5500	19.768	1.555	-6.388	-2.194
6000	20.525	1.479	-6.256	-2.224

PARAMETERS FOR KC

LOG A	B	C
-3.718	0.49	10.788

STD ERROR OF ESTIMATE = 0.021

X196. $CH_3 + HO = CH_4 + O$

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-2.648	-2.660	-7.304	0.346
500	-3.108	-1.713	-8.503	-0.499
1000	-3.265	0.737	-8.819	-1.214
1500	-2.661	1.514	-8.340	-1.434
2000	-1.843	1.706	-7.872	-1.519
2500	-0.978	1.742	-7.487	-1.550
3000	-0.108	1.741	-7.168	-1.559
3500	0.763	1.740	-6.900	-1.555
4000	1.634	1.744	-6.668	-1.546
4500	2.508	1.754	-6.462	-1.534
5000	3.387	1.760	-6.277	-1.519
5500	4.268	1.763	-6.108	-1.504
6000	5.147	1.756	-5.955	-1.489

PARAMETERS FOR KC

LOG A	B	C
-2.066	0.08	-2.648

STD ERROR OF ESTIMATE = 0.024

X197. CH3 + HO2 = CH3O + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-27.328	-1.456	-3.631	19.235
500	-27.587	-0.983	-4.307	11.117
1000	-27.706	0.317	-4.523	5.066
1500	-27.414	0.778	-4.293	3.056
2000	-26.969	0.978	-4.037	2.065
2500	-26.448	1.098	-3.805	1.480
3000	-25.877	1.184	-3.598	1.099
3500	-25.267	1.255	-3.409	0.833
4000	-24.623	1.320	-3.238	0.638
4500	-23.947	1.380	-3.079	0.490
5000	-23.244	1.439	-2.930	0.375
5500	-22.507	1.501	-2.790	0.272
6000	-21.743	1.559	-2.657	0.103

PARAMETERS FOR KC

LOG A	B	C
-1.007	0.02	-27.328

STD ERROR OF ESTIMATE = 0.014

X198. CH3 + HO2 = CH4 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-57.715	-2.048	-7.270	40.717
500	-58.123	-1.787	-8.321	23.587
1000	-58.519	0.041	-8.944	10.834
1500	-58.282	0.787	-8.763	6.577
2000	-57.791	1.148	-8.483	4.461
2500	-57.146	1.425	-8.197	3.204
3000	-56.374	1.665	-7.915	2.377
3500	-55.489	1.866	-7.643	1.795
4000	-54.514	2.027	-7.383	1.365
4500	-53.468	2.150	-7.137	1.037
5000	-52.370	2.237	-6.906	0.780
5500	-51.234	2.302	-6.688	0.574
6000	-50.072	2.346	-6.486	0.407

PARAMETERS FOR KC

LOG A	B	C
-1.488	-0.10	-57.715

STD ERROR OF ESTIMATE = 0.020

X199. CH3 + H2 = CH4 + H

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-0.615	-2.654	-5.707	-0.795
500	-1.084	-1.764	-6.928	-1.039
1000	-1.237	0.819	-7.245	-1.313
1500	-0.566	1.647	-6.713	-1.384
2000	0.308	1.767	-6.211	-1.390
2500	1.189	1.727	-5.817	-1.375
3000	2.027	1.626	-5.512	-1.352
3500	2.808	1.490	-5.271	-1.327
4000	3.514	1.333	-5.082	-1.302
4500	4.140	1.173	-4.934	-1.279
5000	4.688	1.017	-4.819	-1.258
5500	5.159	0.863	-4.728	-1.238
6000	5.552	0.712	-4.660	-1.220

PARAMETERS FOR KC

LOG A	B	C
-1.786	0.10	-0.615

STD ERROR OF ESTIMATE = 0.025

X200. CH3 + H2O = CH3O + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	25.978	-1.418	-7.027	-20.580
500	25.835	0.019	-7.426	-12.915
1000	26.397	1.718	-6.715	-7.237
1500	27.279	1.748	-5.999	-5.285
2000	28.109	1.568	-5.520	-4.277
2500	28.860	1.444	-5.185	-3.656
3000	29.561	1.362	-4.930	-3.231
3500	30.234	1.343	-4.721	-2.919
4000	30.911	1.370	-4.542	-2.681
4500	31.609	1.421	-4.378	-2.491
5000	32.332	1.482	-4.225	-2.337
5500	33.090	1.545	-4.080	-2.219
6000	33.876	1.600	-3.943	-2.205

PARAMETERS FOR KC

LOG A	B	C
-2.961	0.46	25.978

STD ERROR OF ESTIMATE = 0.011

X201. CH3 + H2O = CH4 + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	14.575	-1.588	-3.116	-11.364
500	14.287	-1.099	-3.866	-7.089
1000	14.204	0.551	-4.048	-3.989
1500	14.631	1.033	-3.709	-2.942
2000	15.169	1.086	-3.398	-2.399
2500	15.704	1.047	-3.160	-2.064
3000	16.214	0.993	-2.975	-1.831
3500	16.698	0.948	-2.824	-1.659
4000	17.162	0.911	-2.701	-1.528
4500	17.612	0.886	-2.596	-1.422
5000	18.050	0.870	-2.503	-1.336
5500	18.481	0.853	-2.420	-1.263
6000	18.903	0.833	-2.347	-1.201

PARAMETERS FOR KC

LOG A	B	C
-1.030	0.07	14.575

STD ERROR OF ESTIMATE = 0.015

X202. CH3 + NO = CH3O + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	59.565	-2.450	-6.862	-45.161
500	59.225	-0.878	-7.768	-27.582
1000	59.423	1.195	-7.575	-14.641
1500	60.168	1.677	-6.978	-10.290
2000	61.045	1.797	-6.475	-8.084
2500	61.955	1.833	-6.069	-6.740
3000	62.881	1.863	-5.733	-5.833
3500	63.828	1.924	-5.442	-5.173
4000	64.820	2.033	-5.179	-4.671
4500	65.880	2.189	-4.930	-4.274
5000	67.028	2.384	-4.690	-3.952
5500	68.287	2.604	-4.453	-3.696
6000	69.660	2.828	-4.216	-3.563

PARAMETERS FOR KC

LOG A	B	C
-2.451	0.27	59.565

STD ERROR OF ESTIMATE = 0.020

X203. CH3 + NO2 = CH3O + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-18.150	-1.989	-0.125	13.274
500	-18.532	-1.599	-1.113	7.857
1000	-18.883	0.005	-1.663	3.763
1500	-18.702	0.620	-1.525	2.391
2000	-18.323	0.856	-1.309	1.716
2500	-17.864	0.973	-1.104	1.320
3000	-17.358	1.044	-0.920	1.063
3500	-16.823	1.094	-0.755	0.886
4000	-16.266	1.135	-0.608	0.757
4500	-15.689	1.169	-0.472	0.659
5000	-15.097	1.200	-0.346	0.583
5500	-14.489	1.230	-0.230	0.513
6000	-13.869	1.254	-0.123	0.369

PARAMETERS FOR KC

LOG A	B	C
0.134	-0.11	-18.150

STD ERROR OF ESTIMATE = 0.016

X204. CH3 + N2O = CH3O + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-51.430	-2.554	0.095	37.716
500	-51.962	-2.443	-1.273	22.434
1000	-52.769	-0.948	-2.451	10.996
1500	-53.075	-0.370	-2.707	7.141
2000	-53.196	-0.149	-2.778	5.206
2500	-53.241	-0.041	-2.799	4.043
3000	-53.244	0.023	-2.800	3.266
3500	-53.221	0.070	-2.793	2.713
4000	-53.176	0.109	-2.782	2.298
4500	-53.113	0.142	-2.767	1.975
5000	-53.035	0.176	-2.750	1.717
5500	-52.936	0.213	-2.731	1.494
6000	-52.822	0.251	-2.711	1.223

PARAMETERS FOR KC

LOG A	B	C
1.231	-0.49	-51.430

STD ERROR OF ESTIMATE = 0.011

X205. CH3 + O + M = CH3O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-91.379	-5.522	-31.597	64.460
500	-92.312	-3.640	-34.029	37.524
1000	-93.246	-0.649	-35.444	17.546
1500	-93.297	0.279	-35.498	10.925
2000	-93.061	0.609	-35.364	7.656
2500	-92.718	0.748	-35.211	5.722
3000	-92.327	0.803	-35.070	4.452
3500	-91.923	0.809	-34.945	3.561
4000	-91.523	0.787	-34.839	2.903
4500	-91.139	0.746	-34.748	2.400
5000	-90.779	0.698	-34.672	2.003
5500	-90.441	0.649	-34.607	1.672
6000	-90.130	0.599	-34.553	1.385

PARAMETERS FOR KC

LOG A	B	C
-3.833	0.46	-91.379

STD ERROR OF ESTIMATE = 0.025

X206. CH3 + O2 = CH3O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	27.739	-2.068	-3.665	-21.136
500	27.428	-0.909	-4.489	-12.969
1000	27.548	1.013	-4.398	-6.982
1500	28.207	1.505	-3.870	-4.955
2000	28.979	1.536	-3.426	-3.915
2500	29.720	1.415	-3.095	-3.274
3000	30.389	1.260	-2.851	-2.837
3500	30.985	1.129	-2.666	-2.517
4000	31.525	1.037	-2.523	-2.273
4500	32.029	0.984	-2.404	-2.081
5000	32.513	0.962	-2.301	-1.924
5500	32.995	0.962	-2.210	-1.806
6000	33.476	0.969	-2.126	-1.793

PARAMETERS FOR KC

LOG A	B	C
-1.585	0.21	27.739

STD ERROR OF ESTIMATE = 0.017

X207. CH3O + M = CH4 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-13.436	-0.176	2.314	10.357
500	-13.572	-1.067	1.985	6.366
1000	-14.221	-1.249	1.093	3.347
1500	-14.743	-0.848	0.663	2.293
2000	-15.091	-0.563	0.461	1.749
2500	-15.323	-0.382	0.355	1.417
3000	-15.482	-0.254	0.299	1.193
3500	-15.581	-0.14[illegible]	0.268	1.032
4000	-15.629	-0.048	0.255	0.909
4500	-15.629	0.046	0.254	0.814
5000	-15.583	0.131	0.264	0.740
5500	-15.500	0.208	0.280	0.680
6000	-15.378	0.277	0.301	0.735

PARAMETERS FOR KC

LOG A	B	C
1.692	-0.41	-13.436

STD ERROR OF ESTIMATE = 0.002

X208. CH3O + NN = CH4 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-89.327	-0.278	-1.708	65.109
500	-89.458	-0.887	-2.031	38.659
1000	-89.866	-0.628	-2.608	19.071
1500	-90.107	-0.374	-2.807	12.515
2000	-90.267	-0.288	-2.900	9.230
2500	-90.405	-0.268	-2.962	7.255
3000	-90.541	-0.276	-3.011	5.938
3500	-90.683	-0.294	-3.055	4.995
4000	-90.837	-0.321	-3.095	4.287
4500	-91.004	-0.350	-3.136	3.734
5000	-91.185	-0.381	-3.174	3.292
5500	-91.385	-0.415	-3.211	2.942
6000	-91.601	-0.448	-3.250	2.735

PARAMETERS FOR KC

LOG A	B	C
0.284	-0.24	-89.327

STD ERROR OF ESTIMATE = 0.002

R209. CH3O + HNO = CH4 + NO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-36.785	0.113	-4.148	26.080
500	-36.796	-0.195	-4.168	15.172
1000	-36.932	-0.266	-4.355	7.120
1500	-37.042	-0.180	-4.446	4.426
2000	-37.116	-0.121	-4.489	3.075
2500	-37.166	-0.084	-4.512	2.263
3000	-37.204	-0.062	-4.525	1.721
3500	-37.230	-0.046	-4.533	1.334
4000	-37.250	-0.037	-4.538	1.043
4500	-37.267	-0.029	-4.543	0.817
5000	-37.279	-0.023	-4.546	0.637
5500	-37.290	-0.020	-4.547	0.501
6000	-37.299	-0.016	-4.549	0.474

PARAMETERS FOR KC

LOG A	B	C
-0.672	-0.08	-36.785

STD ERROR OF ESTIMATE = 0.000

R210. CH3O + HO = CH4 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-30.387	-0.592	-3.639	21.482
500	-30.536	-0.804	-4.014	12.470
1000	-30.813	-0.276	-4.421	5.768
1500	-30.868	0.009	-4.470	3.521
2000	-30.822	0.170	-4.446	2.396
2500	-30.698	0.327	-4.392	1.724
3000	-30.497	0.481	-4.317	1.278
3500	-30.222	0.611	-4.234	0.962
4000	-29.891	0.707	-4.145	0.727
4500	-29.521	0.770	-4.058	0.547
5000	-29.126	0.798	-3.976	0.405
5500	-28.727	0.801	-3.898	0.302
6000	-28.329	0.787	-3.829	0.304

PARAMETERS FOR KC

LOG A	B	C
-0.480	-0.13	-30.387

STD ERROR OF ESTIMATE = 0.006

R211. CH3O + H2 = CH4 + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-11.403	-0.170	3.911	9.216
500	-11.548	-1.118	3.560	5.826
1000	-12.193	-1.167	2.667	3.248
1500	-12.646	-0.715	2.290	2.343
2000	-12.940	-0.482	2.122	1.878
2500	-13.156	-0.397	2.025	1.592
3000	-13.347	-0.369	1.955	1.400
3500	-13.536	-0.395	1.897	1.260
4000	-13.749	-0.459	1.841	1.153
4500	-13.997	-0.535	1.782	1.064
5000	-14.282	-0.612	1.722	1.001
5500	-14.609	-0.692	1.660	0.956
6000	-14.975	-0.767	1.596	1.004

PARAMETERS FOR KC

LOG A	B	C
1.932	-0.39	-11.403

STD ERROR OF ESTIMATE = 0.003

R212. CH3O + H2O = CH4 + HO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	41.903	-0.132	0.515	-30.599
500	41.874	-0.116	0.441	-18.206
1000	41.910	0.234	0.475	-9.055
1500	42.045	0.255	0.584	-5.998
2000	42.136	0.108	0.639	-4.464
2500	42.152	-0.051	0.645	-3.544
3000	42.091	-0.191	0.623	-2.930
3500	41.965	-0.307	0.585	-2.492
4000	41.785	-0.409	0.537	-2.166
4500	41.559	-0.494	0.483	-1.912
5000	41.294	-0.569	0.427	-1.711
5500	40.988	-0.648	0.370	-1.535
6000	40.646	-0.726	0.3 0	-1.304

PARAMETERS FOR KC

LOG A	B	C
-0.025	0.04	41.903

STD ERROR OF ESTIMATE = 0.001

X213. CN + NO = CO + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-49.897	-0.204	-1.780	36.185
500	-49.925	-0.095	-1.852	21.416
1000	-49.931	0.074	-1.868	10.503
1500	-49.879	0.092	-1.825	6.868
2000	-49.880	-0.137	-1.825	5.051
2500	-50.045	-0.544	-1.898	3.961
3000	-50.430	-0.984	-2.036	3.228
3500	-51.016	-1.348	-2.217	2.701
4000	-51.756	-1.590	-2.415	2.300
4500	-52.588	-1.719	-2.609	1.984
5000	-53.460	-1.761	-2.794	1.726
5500	-54.340	-1.746	-2.962	1.512
6000	-55.201	-1.697	-3.111	1.331

PARAMETERS FOR KC

LOG A	B	C
-0.386	-0.00	-49.897

STD ERROR OF ESTIMATE = 0.002

X214. CN + NO2 = CO + HNO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-111.617	-0.062	-2.846	81.195
500	-111.642	-0.171	-2.909	48.163
1000	-111.688	0.024	-2.981	23.757
1500	-111.656	0.056	-2.954	15.622
2000	-111.677	-0.182	-2.984	11.555
2500	-111.868	-0.603	-3.049	9.113
3000	-112.286	-1.058	-3.200	7.481
3500	-112.913	-1.435	-3.393	6.309
4000	-113.700	-1.689	-3.602	5.425
4500	-114.583	-1.829	-3.809	4.732
5000	-115.513	-1.880	-4.006	4.173
5500	-116.453	-1.870	-4.186	3.712
6000	-117.377	-1.824	-4.346	3.326

PARAMETERS FOR KC

LOG A	B	C
-0.571	-0.02	-111.617

STD ERROR OF ESTIMATE = 0.001

X215. CN + NO2 = CO2 + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-113.042	0.534	-8.424	81.018
500	-112.865	1.026	-7.980	47.587
1000	-112.338	1.090	-7.250	22.965
1500	-111.773	1.145	-6.793	14.800
2000	-111.224	1.014	-6.476	10.737
2500	-110.788	0.710	-6.280	8.313
3000	-110.521	0.371	-6.162	6.700
3500	-110.406	0.102	-6.146	5.551
4000	-110.396	-0.043	-6.144	4.684
4500	-110.431	-0.078	-6.151	4.019
5000	-110.459	-0.026	-6.157	3.482
5500	-110.439	0.114	-6.154	3.043
6000	-110.334	0.290	-6.136	2.678

PARAMETERS FOR KC

LOG A	B	C
-5.092	0.43	-113.042

STD ERROR OF ESTIMATE = 0.003

X216. CN + NO = CO + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-151.997	-0.175	-5.769	110.154
500	-152.035	-0.252	-5.867	65.171
1000	-152.214	-0.373	-6.110	31.930
1500	-152.384	-0.327	-6.248	20.836
2000	-152.577	-0.483	-6.357	15.283
2500	-152.900	-0.836	-6.501	11.946
3000	-153.422	-1.245	-6.690	9.714
3500	-154.135	-1.588	-6.910	8.114
4000	-154.992	-1.819	-7.138	6.908
4500	-155.935	-1.941	-7.359	5.965
5000	-156.917	-1.974	-7.567	5.205
5500	-157.900	-1.947	-7.755	4.580
6000	-158.857	-1.879	-7.921	4.056

PARAMETERS FOR KC

LOG A	B	C
-5.870	-0.13	-151.997

STD ERROR OF ESTIMATE = 0.003

X217. CN + NO2 = CO + N2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-118.717	0.390	-5.989	85.712
500	-118.605	0.592	-5.707	50.594
1000	-118.328	0.580	-5.322	24.697
1500	-118.011	0.663	-5.066	16.086
2000	-117.704	0.522	-4.888	11.793
2500	-117.523	0.178	-4.806	9.223
3000	-117.536	-0.224	-4.810	7.511
3500	-117.737	-0.564	-4.872	6.287
4000	-118.082	-0.793	-4.964	5.367
4500	-118.511	-0.914	-5.064	4.649
5000	-118.979	-0.950	-5.163	4.071
5500	-119.453	-0.930	-5.254	3.599
6000	-119.904	-0.876	-5.333	3.202

PARAMETERS FOR KC

LOG A	B	C
-1.967	0.23	-118.717

STD ERROR OF ESTIMATE = 0.001

X218. CN + NO2 = CO2 + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-205.964	0.030	-8.907	149.026
500	-205.920	0.253	-8.801	88.082
1000	-205.798	0.331	-8.632	43.089
1500	-205.566	0.568	-8.448	28.103
2000	-205.275	0.546	-8.280	20.620
2500	-205.059	0.293	-8.182	16.138
3000	-204.994	-0.030	-8.158	13.150
3500	-205.081	-0.299	-8.185	11.017
4000	-205.275	-0.457	-8.237	9.416
4500	-205.520	-0.511	-8.294	8.169
5000	-205.769	-0.476	-8.346	7.169
5500	-205.981	-0.358	-8.387	6.352
6000	-206.121	-0.197	-8.412	5.669

PARAMETERS FOR KC

LOG A	B	C
-2.393	0.15	-205.964

STD ERROR OF ESTIMATE = 0.003

X219. CN + O = CO + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-77.011	-0.272	-3.046	55.787
500	-77.050	-0.147	-3.148	32.992
1000	-77.109	-0.096	-3.232	16.147
1500	-77.157	-0.119	-3.270	10.527
2000	-77.259	-0.334	-3.328	7.716
2500	-77.517	-0.721	-3.442	6.026
3000	-77.982	-1.138	-3.612	4.892
3500	-78.634	-1.458	-3.814	4.078
4000	-79.407	-1.622	-4.021	3.462
4500	-80.220	-1.634	-4.213	2.978
5000	-81.004	-1.518	-4.381	2.585
5500	-81.706	-1.320	-4.518	2.262
6000	-82.289	-1.073	-4.622	1.992

PARAMETERS FOR KC

LOG A	B	C
-0.487	-0.06	-77.011

STD ERROR OF ESTIMATE = 0.003

X220. CN + O2 = CO + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-108.837	0.110	0.151	79.812
500	-108.847	-0.178	0.131	47.605
1000	-108.984	-0.278	-0.055	23.806
1500	-109.118	-0.291	-0.162	15.862
2000	-109.325	-0.595	-0.279	11.885
2500	-109.752	-1.139	-0.468	9.492
3000	-110.474	-1.741	-0.730	7.888
3500	-111.477	-2.253	-1.038	6.734
4000	-112.702	-2.618	-1.365	5.860
4500	-114.071	-2.839	-1.687	5.171
5000	-115.519	-2.940	-1.992	4.613
5500	-116.998	-2.962	-2.275	4.152
6000	-118.473	-2.932	-2.532	3.762

PARAMETERS FOR KC

LOG A	B	C
0.378	-0.11	-108.837

STD ERROR OF ESTIMATE = 0.005

X221. CN + O2 = CO2 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-85.089	-0.146	-9.724	60.249
500	-84.975	1.048	-9.458	35.077
1000	-84.262	1.616	-8.489	16.561
1500	-83.430	1.661	-7.815	10.448
2000	-82.655	1.375	-7.368	7.422
2500	-82.092	0.850	-7.114	5.624
3000	-81.807	0.293	-7.011	4.428
3500	-81.772	-0.134	-7.000	3.578
4000	-81.899	-0.358	-7.035	2.940
4500	-82.087	-0.389	-7.080	2.442
5000	-82.246	-0.258	-7.115	2.042
5500	-82.303	0.001	-7.130	1.715
6000	-82.208	0.324	-7.116	1.443

PARAMETERS FOR KC

LOG A	B	C
-3.730	0.56	-85.089

STD ERROR OF ESTIMATE = 0.006

X222. CO + HNO = CO2 + HN

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-1.425	0.596	-5.578	-0.177
500	-1.223	1.197	-5.071	-0.576
1000	-0.650	1.066	-4.269	-0.792
1500	-0.117	1.089	-3.839	-0.822
2000	0.453	1.196	-3.512	-0.818
2500	1.080	1.313	-3.231	-0.800
3000	1.765	1.429	-2.982	-0.781
3500	2.507	1.537	-2.753	-0.758
4000	3.304	1.640	-2.542	-0.736
4500	4.152	1.751	-2.342	-0.713
5000	5.054	1.856	-2.151	-0.691
5500	6.014	1.984	-1.968	-0.669
6000	7.038	2.114	-1.790	-0.648

PARAMETERS FOR KC

LOG A	B	C
-2.480	0.45	-1.425

STD ERROR OF ESTIMATE = 0.004

X223. CO + NO = CO2 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-25.029	-0.290	-12.631	15.587
500	-24.889	1.458	-12.309	8.189
1000	-23.745	2.685	-10.771	2.835
1500	-22.398	2.637	-9.678	1.149
2000	-21.127	2.442	-8.947	0.353
2500	-19.950	2.280	-8.419	-0.093
3000	-18.840	2.166	-8.015	-0.379
3500	-17.779	2.080	-7.688	-0.570
4000	-16.754	2.019	-7.414	-0.704
4500	-15.759	1.969	-7.179	-0.803
5000	-14.785	1.927	-6.974	-0.878
5500	-13.824	1.914	-6.790	-0.935
6000	-12.870	1.907	-6.624	-0.980

PARAMETERS FOR KC

LOG A	B	C
-5.376	0.91	-25.029

STD ERROR OF ESTIMATE = 0.012

X224. CO + NO2 = CO2 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-63.145	0.738	-6.644	44.833
500	-62.940	1.121	-6.128	26.171
1000	-62.407	1.016	-5.382	12.462
1500	-61.894	1.053	-4.968	7.932
2000	-61.344	1.151	-4.651	5.686
2500	-60.743	1.254	-4.382	4.352
3000	-60.091	1.355	-4.146	3.472
3500	-59.390	1.450	-3.929	2.850
4000	-58.640	1.547	-3.729	2.389
4500	-57.843	1.641	-3.542	2.035
5000	-56.999	1.737	-3.363	1.756
5500	-56.099	1.860	-3.192	1.531
6000	-55.138	1.987	-3.025	1.347

PARAMETERS FOR KC

LOG A	B	C
-2.665	0.44	-63.145

STD ERROR OF ESTIMATE = 0.004

x225. CO + H2O = CO2 + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-9.839	8.776	-10.040	5.018
500	-9.518	2.123	-9.247	2.139
1000	-8.304	2.417	-7.574	0.159
1500	-7.201	2.023	-6.674	-0.409
2000	-6.266	1.741	-6.134	-0.656
2500	-5.435	1.600	-5.762	-0.784
3000	-4.653	1.533	-5.478	-0.858
3500	-3.889	1.538	-5.241	-0.902
4000	-3.106	1.597	-5.033	-0.930
4500	-2.287	1.682	-4.841	-0.946
5000	-1.423	1.780	-4.658	-0.956
5500	-0.502	1.904	-4.482	-0.960
6000	0.481	2.028	-4.311	-0.961

PARAMETERS FOR KC

LOG A	B	C
-4.621	0.87	-9.839

STD ERROR OF ESTIMATE = 0.002

x226. CO + NO = CO2 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	23.748	-0.256	-9.875	-19.563
500	23.672	1.226	-9.589	-12.528
1000	24.722	1.894	-8.434	-7.245
1500	25.688	1.952	-7.653	-5.414
2000	26.670	1.970	-7.089	-4.463
2500	27.660	1.989	-6.646	-3.868
3000	28.667	2.034	-6.281	-3.460
3500	29.705	2.119	-5.962	-3.156
4000	30.803	2.260	-5.670	-2.920
4500	31.984	2.450	-5.393	-2.729
5000	33.273	2.682	-5.123	-2.571
5500	34.695	2.963	-4.855	-2.437
6000	36.265	3.256	-4.584	-2.319

PARAMETERS FOR KC

LOG A	B	C
-4.109	0.68	23.748

STD ERROR OF ESTIMATE = 0.010

x227. CO + NO2 = CO2 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-53.967	0.205	-3.138	38.872
500	-53.885	0.505	-2.934	22.911
1000	-53.584	0.704	-2.522	11.159
1500	-53.182	0.895	-2.200	7.267
2000	-52.698	1.029	-1.923	5.337
2500	-52.159	1.129	-1.681	4.192
3000	-51.572	1.215	-1.468	3.436
3500	-50.946	1.289	-1.275	2.903
4000	-50.283	1.362	-1.099	2.508
4500	-49.585	1.430	-0.935	2.204
5000	-48.852	1.498	-0.779	1.964
5500	-48.081	1.589	-0.632	1.772
6000	-47.264	1.682	-0.491	1.613

PARAMETERS FOR KC

LOG A	B	C
-1.523	0.29	-53.967

STD ERROR OF ESTIMATE = 0.007

x228. CO + N2O = CO2 + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-87.247	-0.360	-2.918	63.314
500	-87.315	-0.339	-3.094	37.488
1000	-87.470	-0.249	-3.310	18.392
1500	-87.555	-0.095	-3.382	12.017
2000	-87.571	0.024	-3.392	8.827
2500	-87.536	0.115	-3.376	6.915
3000	-87.458	0.194	-3.348	5.639
3500	-87.344	0.265	-3.313	4.730
4000	-87.193	0.336	-3.273	4.049
4500	-87.009	0.403	-3.230	3.520
5000	-86.790	0.474	-3.183	3.098
5500	-86.528	0.572	-3.133	2.753
6000	-86.217	0.679	-3.079	2.467

PARAMETERS FOR KC

LOG A	B	C
-0.426	-0.08	-87.247

STD ERROR OF ESTIMATE = 0.002

R229. CO + O + M = CO2 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-127.196	-3.328	-34.610	90.058
500	-127.665	-1.536	-35.850	52.578
1000	-127.947	0.050	-36.303	24.942
1500	-127.777	0.554	-36.173	15.801
2000	-127.436	0.782	-35.978	11.277
2500	-127.013	0.904	-35.788	8.594
3000	-126.541	0.974	-35.618	6.825
3500	-126.046	1.004	-35.465	5.578
4000	-125.540	1.014	-35.330	4.654
4500	-125.035	1.007	-35.211	3.945
5000	-124.534	0.996	-35.105	3.384
5500	-124.033	1.008	-35.009	2.931
6000	-123.525	1.027	-34.921	2.559

PARAMETERS FOR KC

LOG A	B	C
-5.491	0.87	-127.196

STD ERROR OF ESTIMATE = 0.016

R230. CO + O2 = CO2 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-6.078	0.126	-6.678	4.462
500	-7.925	1.195	-6.310	2.085
1000	-7.153	1.712	-5.257	0.414
1500	-6.273	1.780	-4.545	-0.079
2000	-5.396	1.709	-4.040	-0.294
2500	-4.575	1.571	-3.672	-0.402
3000	-3.825	1.431	-3.399	-0.464
3500	-3.138	1.324	-3.186	-0.500
4000	-2.492	1.264	-3.014	-0.522
4500	-1.867	1.245	-2.867	-0.536
5000	-1.242	1.260	-2.734	-0.543
5500	-0.597	1.321	-2.612	-0.547
6000	0.081	1.347	-2.494	-0.549

PARAMETERS FOR KC

LOG A	B	C
-3.243	0.62	-6.078

STD ERROR OF ESTIMATE = 0.008

R231. H + H + M = H2 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-104.200	-3.044	-23.576	75.612
500	-104.800	-2.943	-25.116	44.929
1000	-106.230	-2.717	-27.106	22.206
1500	-107.474	-2.216	-28.122	14.602
2000	-108.460	-1.741	-28.692	10.795
2500	-109.230	-1.361	-29.039	8.514
3000	-109.836	-1.077	-29.259	6.997
3500	-110.312	-0.826	-29.406	5.920
4000	-110.666	-0.594	-29.502	5.114
4500	-110.908	-0.381	-29.560	4.493
5000	-111.050	-0.188	-29.589	4.001
5500	-111.100	-0.006	-29.599	3.600
6000	-111.060	0.164	-29.592	3.270

PARAMETERS FOR KC

LOG A	B	C
-0.394	-0.05	-104.200

STD ERROR OF ESTIMATE = 0.003

R232. H + HN = H2 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-29.147	-0.074	-2.863	20.743
500	-29.149	-0.001	-2.871	12.116
1000	-29.206	-0.252	-2.938	5.743
1500	-29.373	-0.344	-3.072	3.609
2000	-29.530	-0.278	-3.164	2.536
2500	-29.639	-0.162	-3.214	1.890
3000	-29.687	-0.039	-3.232	1.457
3500	-29.663	0.140	-3.226	1.149
4000	-29.531	0.379	-3.192	0.918
4500	-29.264	0.666	-3.132	0.739
5000	-28.845	0.986	-3.045	0.598
5500	-28.257	1.326	-2.936	0.484
6000	-27.493	1.668	-2.806	0.392

PARAMETERS FOR KC

LOG A	B	C
-0.379	-0.08	-29.147

STD ERROR OF ESTIMATE = 0.001

X233. H + HNO + HN + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	23.604	0.886	7.053	-15.764
500	23.666	-0.261	7.238	-8.765
1000	23.095	-1.619	6.502	-3.627
1500	22.281	-1.548	5.839	-1.971
2000	21.580	-1.246	5.435	-1.171
2500	21.030	-0.967	5.168	-0.705
3000	20.605	-0.737	5.033	-0.402
3500	20.286	-0.543	4.935	-0.188
4000	20.058	-0.373	4.872	-0.032
4500	19.911	-0.218	4.837	0.090
5000	19.839	-0.071	4.823	0.187
5500	19.838	0.070	4.822	0.266
6000	19.908	0.207	4.834	0.332

PARAMETERS FOR KC

LOG A	B	C
2.896	-0.45	23.604

STD ERROR OF ESTIMATE = 0.007

X234. H + HNO + H2 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-54.320	0.778	1.434	40.129
500	-54.244	-0.030	1.647	24.096
1000	-54.578	-1.080	1.227	12.196
1500	-55.178	-1.207	0.742	8.201
2000	-55.747	-1.052	0.413	6.181
2500	-56.219	-0.838	0.201	4.958
3000	-56.584	-0.644	0.067	4.136
3500	-56.861	-0.442	-0.017	3.547
4000	-57.030	-0.235	-0.064	3.102
4500	-57.096	-0.033	-0.081	2.755
5000	-57.064	0.160	-0.073	2.478
5500	-56.938	0.347	-0.049	2.252
6000	-56.720	0.526	-0.012	2.063

PARAMETERS FOR KC

LOG A	B	C
1.248	-0.30	-54.320

STD ERROR OF ESTIMATE = 0.008

X235. H + HNO + H2O + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-20.733	-0.254	1.599	15.548
500	-20.854	-0.927	1.305	9.401
1000	-21.552	-1.603	0.367	4.792
1500	-22.289	-1.278	-0.237	3.196
2000	-22.811	-0.823	-0.542	2.374
2500	-23.124	-0.449	-0.683	1.874
3000	-23.269	-0.143	-0.736	1.534
3500	-23.267	0.139	-0.738	1.293
4000	-23.121	0.428	-0.701	1.112
4500	-22.825	0.735	-0.633	0.972
5000	-22.368	1.062	-0.538	0.863
5500	-21.741	1.406	-0.422	0.775
6000	-20.936	1.754	-0.285	0.705

PARAMETERS FOR KC

LOG A	B	C
1.760	-0.49	-20.733

STD ERROR OF ESTIMATE = 0.001

X236. H + HO + H2 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-2.033	-0.006	-1.597	1.141
500	-2.024	0.051	-1.575	0.540
1000	-2.028	-0.082	-1.574	0.099
1500	-2.095	-0.133	-1.627	-0.050
2000	-2.151	-0.081	-1.661	-0.129
2500	-2.167	0.015	-1.670	-0.175
3000	-2.135	0.115	-1.656	-0.207
3500	-2.045	0.250	-1.629	-0.228
4000	-1.880	0.411	-1.586	-0.244
4500	-1.632	0.581	-1.528	-0.255
5000	-1.301	0.743	-1.458	-0.261
5500	-0.891	0.900	-1.380	-0.266
6000	-0.405	1.044	-1.295	-0.269

PARAMETERS FOR KC

LOG A	B	C
-0.279	-0.02	-2.033

STD ERROR OF ESTIMATE = 0.001

R237. H + HO + M = H2O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-119.390	-4.110	-26.167	86.181
500	-120.171	-3.608	-28.178	50.979
1000	-121.671	-2.469	-30.303	24.882
1500	-122.671	-1.602	-31.126	16.160
2000	-123.321	-1.040	-31.505	11.804
2500	-123.745	-0.681	-31.696	9.203
3000	-124.023	-0.444	-31.796	7.476
3500	-124.202	-0.284	-31.853	6.252
4000	-124.314	-0.172	-31.883	5.340
4500	-124.380	-0.094	-31.898	4.636
5000	-124.412	-0.041	-31.905	4.079
5500	-124.422	0.004	-31.907	3.625
6000	-124.411	0.043	-31.905	3.251

PARAMETERS FOR KC

LOG A	B	C
-1.150	-0.02	-119.390

STD ERROR OF ESTIMATE = 0.013

R238. H + HO2 = HO + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-38.116	1.028	5.987	29.246
500	-38.091	-0.337	6.181	17.982
1000	-38.662	-1.669	5.389	9.627
1500	-39.496	-1.504	4.710	6.783
2000	-40.217	-1.291	4.296	5.333
2500	-40.793	-1.026	4.037	4.447
3000	-41.251	-0.811	3.869	3.851
3500	-41.611	-0.630	3.759	3.420
4000	-41.886	-0.472	3.685	3.093
4500	-42.084	-0.328	3.637	2.835
5000	-42.214	-0.190	3.611	2.634
5500	-42.275	-0.054	3.598	2.466
6000	-42.268	0.080	3.599	2.327

PARAMETERS FOR KC

LOG A	B	C
2.711	-0.48	-38.116

STD ERROR OF ESTIMATE = 0.007

R239. H + HO2 = H2 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-57.100	0.606	-1.563	41.512
500	-57.039	-0.023	-1.393	24.626
1000	-57.282	-0.778	-1.699	12.147
1500	-57.716	-0.860	-2.050	7.961
2000	-58.099	-0.639	-2.272	5.851
2500	-58.335	-0.302	-2.380	4.579
3000	-58.401	0.039	-2.403	3.729
3500	-58.297	0.376	-2.372	3.122
4000	-58.028	0.694	-2.301	2.667
4500	-57.608	0.977	-2.203	2.316
5000	-57.058	1.220	-2.087	2.038
5500	-56.393	1.439	-1.960	1.812
6000	-55.624	1.634	-1.826	1.627

PARAMETERS FOR KC

LOG A	B	C
0.298	-0.20	-57.100

STD ERROR OF ESTIMATE = 0.005

R240. H + HO2 = H2O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-55.339	-0.044	1.799	40.956
500	-55.446	-0.951	1.544	24.572
1000	-56.131	-1.483	0.618	12.402
1500	-56.788	-1.103	0.079	8.291
2000	-57.229	-0.671	-0.178	6.213
2500	-57.475	-0.331	-0.290	4.961
3000	-57.573	-0.063	-0.324	4.123
3500	-57.546	0.162	-0.317	3.524
4000	-57.414	0.361	-0.282	3.075
4500	-57.188	0.540	-0.229	2.726
5000	-56.877	0.700	-0.163	2.451
5500	-56.488	0.856	-0.090	2.225
6000	-56.024	1.003	-0.009	2.039

PARAMETERS FOR KC

LOG A	B	C
1.676	-0.45	-55.339

STD ERROR OF ESTIMATE = 0.002

R241. H + H2O + HO + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	15.190	1.066	2.591	-10.569
500	15.371	0.665	3.062	-6.050
1000	15.441	-0.268	3.197	-2.676
1500	15.197	-0.614	3.004	-1.556
2000	14.861	-0.701	2.813	-1.009
2500	14.515	-0.680	2.657	-0.689
3000	14.187	-0.633	2.537	-0.479
3500	13.890	-0.582	2.447	-0.332
4000	13.648	-0.422	2.381	-0.226
4500	13.472	-0.287	2.338	-0.143
5000	13.362	-0.147	2.316	-0.078
5500	13.322	-0.010	2.308	-0.025
6000	13.351	0.121	2.313	0.019

PARAMETERS FOR KC

LOG A	B	C
0.755	-0.03	15.190

STD ERROR OF ESTIMATE = 0.010

R242. H + N + M + HN + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-75.053	-2.470	-20.713	54.869
500	-75.651	-2.942	-22.245	32.813
1000	-77.024	-2.465	-24.168	16.463
1500	-78.101	-1.872	-25.050	10.995
2000	-78.930	-1.463	-25.528	8.259
2500	-79.591	-1.199	-25.825	6.624
3000	-80.149	-1.038	-26.027	5.540
3500	-80.649	-0.966	-26.180	4.771
4000	-81.135	-0.975	-26.310	4.196
4500	-81.644	-1.047	-26.428	3.754
5000	-82.205	-1.174	-26.544	3.403
5500	-82.843	-1.332	-26.663	3.116
6000	-83.567	-1.504	-26.786	2.878

PARAMETERS FOR KC

LOG A	B	C
-0.014	0.02	-75.053

STD ERROR OF ESTIMATE = 0.005

R243. H + NO + HN + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	75.891	0.102	4.022	-54.752
500	75.886	-0.180	4.016	-32.293
1000	75.645	-0.621	3.701	-15.724
1500	75.364	-0.474	3.470	-10.222
2000	75.176	-0.275	3.361	-7.481
2500	75.082	-0.114	3.317	-5.838
3000	75.059	0.022	3.310	-4.745
3500	75.102	0.149	3.323	-3.963
4000	75.208	0.273	3.350	-3.378
4500	75.375	0.396	3.390	-2.920
5000	75.602	0.512	3.438	-2.552
5500	75.885	0.623	3.491	-2.252
6000	76.223	0.725	3.551	-2.000

PARAMETERS FOR KC

LOG A	B	C
1.367	-0.16	75.891

STD ERROR OF ESTIMATE = 0.001

R244. H + NO + M + HNO + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-49.880	-3.822	-25.010	35.483
500	-50.556	-2.913	-26.763	20.861
1000	-51.652	-1.637	-28.333	10.010
1500	-52.296	-1.009	-28.864	6.401
2000	-52.713	-0.689	-29.105	4.614
2500	-53.011	-0.523	-29.240	3.556
3000	-53.247	-0.433	-29.326	2.861
3500	-53.451	-0.384	-29.389	2.373
4000	-53.636	-0.359	-29.438	2.012
4500	-53.812	-0.348	-29.479	1.738
5000	-53.986	-0.348	-29.516	1.523
5500	-54.162	-0.353	-29.550	1.348
6000	-54.340	-0.362	-29.580	1.207

PARAMETERS FOR KC

LOG A	B	C
-1.642	0.24	-49.880

STD ERROR OF ESTIMATE = 0.011

R245. H + NO + HO + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	48.777	0.034	2.756	-35.150
500	48.761	-0.232	2.720	-20.717
1000	48.487	-0.791	2.337	-10.080
1500	48.086	-0.685	2.025	-6.563
2000	47.797	-0.472	1.858	-4.816
2500	47.610	-0.291	1.773	-3.773
3000	47.507	-0.132	1.734	-3.081
3500	47.484	0.039	1.726	-2.586
4000	47.557	0.241	1.744	-2.216
4500	47.743	0.481	1.786	-1.926
5000	48.058	0.755	1.851	-1.693
5500	48.519	1.049	1.935	-1.502
6000	49.135	1.349	2.040	-1.339

PARAMETERS FOR KC

LOG A	B	C
1.267	-0.22	48.777

STD ERROR OF ESTIMATE = 0.001

R246. H + NO2 + HN + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	30.002	0.181	7.562	-20.342
500	29.926	-0.870	7.392	-11.467
1000	29.214	-1.629	6.436	-4.979
1500	28.455	-1.359	5.815	-2.876
2000	27.874	-0.955	5.478	-1.850
2500	27.498	-0.556	5.308	-1.244
3000	27.312	-0.194	5.241	-0.865
3500	27.294	0.114	5.234	-0.580
4000	27.417	0.371	5.265	-0.348
4500	27.657	0.581	5.322	-0.160
5000	27.992	0.750	5.393	-0.045
5500	28.401	0.891	5.471	0.067
6000	28.878	1.010	5.554	0.162

PARAMETERS FOR KC

LOG A	B	C
3.087	-0.50	30.002

STD ERROR OF ESTIMATE = 0.002

R247. H + NO2 + HNO + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	23.349	0.289	6.462	-15.703
500	23.224	-0.672	6.153	-8.606
1000	22.711	-0.983	5.448	-3.773
1500	22.299	-0.668	5.109	-2.133
2000	22.025	-0.442	4.950	-1.326
2500	21.843	-0.298	4.867	-0.846
3000	21.722	-0.192	4.824	-0.528
3500	21.644	-0.099	4.801	-0.302
4000	21.621	-0.011	4.793	-0.134
4500	21.638	0.075	4.797	-0.003
5000	21.696	0.154	4.810	0.103
5500	21.790	0.228	4.827	0.189
6000	21.921	0.293	4.850	0.261

PARAMETERS FOR KC

LOG A	B	C
2.324	-0.33	23.349

STD ERROR OF ESTIMATE = 0.002

R248. H + NO2 + HO + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-28.938	0.495	9.493	23.285
500	-28.996	-0.953	9.375	14.722
1000	-29.839	-1.981	8.249	8.324
1500	-30.784	-1.742	7.478	6.118
2000	-31.571	-1.413	7.024	4.984
2500	-32.209	-1.151	6.738	4.287
3000	-32.732	-0.951	6.547	3.815
3500	-33.167	-0.791	6.413	3.473
4000	-33.529	-0.657	6.315	3.212
4500	-33.826	-0.539	6.244	3.007
5000	-34.067	-0.429	6.195	2.842
5500	-34.257	-0.325	6.158	2.707
6000	-34.394	-0.225	6.133	2.593

PARAMETERS FOR KC

LOG A	B	C
3.853	-0.61	-28.938

STD ERROR OF ESTIMATE = 0.005

X249. M + N2O + HO2 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	57.955	-0.499	6.262	-61.111
500	57.816	-0.848	5.914	-23.977
1000	57.290	-1.103	5.197	-11.383
1500	56.798	-0.843	4.793	-7.226
2000	56.463	-0.594	4.586	-5.165
2500	56.194	-0.416	4.474	-3.933
3000	56.026	-0.272	4.412	-3.117
3500	55.928	-0.122	4.380	-2.533
4000	55.914	0.056	4.374	-2.097
4500	56.031	0.270	4.393	-1.757
5000	56.205	0.516	4.435	-1.485
5500	56.537	0.778	4.495	-1.261
6000	57.009	1.044	4.574	-1.073

PARAMETERS FOR KC

LOG A	B	C
2.409	-0.37	57.955

STD ERROR OF ESTIMATE = 0.001

X250. M + N2 + HN + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	150.877	0.005	6.745	-109.119
500	150.871	-0.075	6.735	-64.472
1000	150.750	-0.344	6.579	-31.507
1500	150.591	-0.266	6.448	-20.531
2000	150.494	-0.126	6.390	-15.048
2500	150.465	0.001	6.376	-11.758
3000	150.499	0.124	6.388	-9.567
3500	150.603	0.279	6.419	-7.999
4000	150.793	0.470	6.467	-6.824
4500	151.090	0.703	6.536	-5.907
5000	151.515	0.966	6.624	-5.172
5500	152.079	1.250	6.728	-4.570
6000	152.791	1.531	6.850	-4.064

PARAMETERS FOR KC

LOG A	B	C
1.751	-0.09	150.877

STD ERROR OF ESTIMATE = 0.000

X251. M + N2O + HN + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	39.882	-0.099	13.702	-26.242
500	39.684	-1.640	13.230	-14.456
1000	38.558	-2.487	11.703	-5.870
1500	37.348	-2.313	10.719	-3.100
2000	36.253	-2.072	10.087	-1.758
2500	35.269	-1.873	9.646	-0.975
3000	34.374	-1.711	9.321	-0.468
3500	33.554	-1.575	9.068	-0.113
4000	32.797	-1.454	8.864	0.145
4500	32.097	-1.344	8.699	0.342
5000	31.452	-1.240	8.564	0.497
5500	30.856	-1.141	8.450	0.620
6000	30.309	-1.046	8.355	0.722

PARAMETERS FOR KC

LOG A	B	C
5.434	-0.85	39.882

STD ERROR OF ESTIMATE = 0.007

X252. M + N2O + HNO + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	65.055	-0.951	9.405	-45.628
500	64.779	-1.611	8.712	-26.408
1000	63.930	-1.659	7.538	-12.323
1500	63.153	-1.450	6.905	-7.692
2000	62.470	-1.298	6.510	-5.403
2500	61.849	-1.197	6.231	-4.043
3000	61.276	-1.106	6.022	-3.147
3500	60.752	-0.993	5.859	-2.511
4000	60.296	-0.840	5.736	-2.039
4500	59.929	-0.645	5.648	-1.674
5000	59.671	-0.414	5.592	-1.383
5500	59.537	-0.162	5.563	-1.148
6000	59.536	0.096	5.561	-0.949

PARAMETERS FOR KC

LOG A	B	C
3.805	-0.63	65.055

STD ERROR OF ESTIMATE = 0.001

8253. H + N2O + HO + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-62.218	-0.070	9.713	47.727
500	-62.426	-1.797	9.219	29.299
1000	-63.725	-2.934	7.461	15.557
1500	-65.157	-2.732	6.296	10.868
2000	-66.444	-2.418	5.595	8.474
2500	-67.586	-2.185	5.093	7.010
3000	-68.618	-1.972	4.667	6.018
3500	-69.565	-1.815	4.375	5.300
4000	-70.434	-1.683	4.161	4.755
4500	-71.250	-1.566	3.969	4.323
5000	-72.005	-1.453	3.791	3.976
5500	-72.704	-1.342	3.657	3.688
6000	-73.347	-1.228	3.545	3.447

PARAMETERS FOR KC

LOG A	B	C
4.450	-0.99	-62.218

STD ERROR OF ESTIMATE = 0.009

8254. H + O + M + HO + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-102.167	-3.038	-21.979	74.471
500	-102.776	-2.994	-23.941	44.389
1000	-104.202	-2.635	-25.532	22.107
1500	-105.379	-2.083	-26.495	14.652
2000	-106.309	-1.660	-27.051	10.924
2500	-107.063	-1.576	-27.369	8.689
3000	-107.701	-1.192	-27.603	7.204
3500	-108.267	-1.076	-27.777	6.148
4000	-108.786	-1.005	-27.918	5.356
4500	-109.276	-0.962	-28.032	4.748
5000	-109.749	-0.931	-28.131	4.262
5500	-110.209	-0.906	-28.219	3.866
6000	-110.655	-0.882	-28.297	3.539

PARAMETERS FOR KC

LOG A	B	C
-0.114	-0.03	-102.167

STD ERROR OF ESTIMATE = 0.004

8255. H + O2 + HO + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	16.951	0.416	5.953	-11.125
500	16.964	-0.263	5.999	-6.104
1000	16.592	-0.973	5.514	-2.421
1500	16.125	-0.857	5.133	-1.228
2000	15.731	-0.733	4.907	-0.647
2500	15.375	-0.709	4.747	-0.307
3000	15.015	-0.735	4.616	-0.085
3500	14.641	-0.756	4.502	0.070
4000	14.262	-0.755	4.400	0.182
4500	13.892	-0.724	4.312	0.267
5000	13.543	-0.667	4.240	0.335
5500	13.227	-0.593	4.178	0.388
6000	12.951	-0.510	4.130	0.431

PARAMETERS FOR KC

LOG A	B	C
2.133	-0.28	16.951

STD ERROR OF ESTIMATE = 0.003

8256. H + O2 + M + HO2 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-47.100	-3.650	-22.013	34.100
500	-47.761	-2.920	-23.723	20.303
1000	-48.968	-1.939	-25.407	10.059
1500	-49.758	-1.356	-26.072	6.641
2000	-50.361	-1.102	-26.420	4.944
2500	-50.895	-1.059	-26.659	3.935
3000	-51.435	-1.116	-26.856	3.268
3500	-52.015	-1.202	-27.034	2.798
4000	-52.638	-1.288	-27.201	2.447
4500	-53.300	-1.358	-27.357	2.177
5000	-53.992	-1.408	-27.502	1.963
5500	-54.707	-1.445	-27.639	1.788
6000	-55.436	-1.470	-27.766	1.643

PARAMETERS FOR KC

LOG A	B	C
-0.692	0.15	-47.100

STD ERROR OF ESTIMATE = 0.007

R257. MN + MN + M2 + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-180.024	-0.079	-9.608	129.862
500	-180.020	0.074	-9.606	76.588
1000	-179.956	0.092	-9.517	37.250
1500	-179.964	-0.078	-9.520	24.140
2000	-180.024	-0.152	-9.554	17.584
2500	-180.104	-0.163	-9.590	13.648
3000	-180.186	-0.168	-9.620	11.024
3500	-180.266	-0.139	-9.645	9.148
4000	-180.324	-0.091	-9.659	7.742
4500	-180.354	-0.037	-9.668	6.646
5000	-180.360	0.018	-9.669	5.770
5500	-180.336	0.076	-9.664	5.054
6000	-180.284	0.137	-9.656	4.456

PARAMETERS FOR KC

LOG A	B	C
-2.131	0.01	-180.024

STD ERROR OF ESTIMATE = 0.002

R258. MN + MNO + M2 + N2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-94.202	0.877	-12.268	66.371
500	-93.928	1.610	-11.583	38.524
1000	-93.136	1.407	-10.476	18.066
1500	-92.526	1.106	-9.977	11.301
2000	-92.000	1.020	-9.674	7.939
2500	-91.488	1.035	-9.445	5.935
3000	-90.963	1.067	-9.254	4.604
3500	-90.415	1.133	-9.085	3.660
4000	-89.827	1.219	-8.928	2.957
4500	-89.195	1.311	-8.780	2.415
5000	-88.516	1.400	-8.637	1.981
5500	-87.794	1.488	-8.499	1.632
6000	-87.029	1.572	-8.367	1.341

PARAMETERS FOR KC

LOG A	B	C
-4.185	0.55	-94.202

STD ERROR OF ESTIMATE = 0.000

R259. MN + MNO + M2O + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-171.610	-0.259	-5.146	124.667
500	-171.725	-0.852	-5.430	73.873
1000	-172.302	-1.259	-6.212	36.299
1500	-172.880	-1.012	-6.685	23.727
2000	-173.305	-0.647	-6.932	17.422
2500	-173.589	-0.450	-7.059	13.632
3000	-173.768	-0.272	-7.124	11.101
3500	-173.870	-0.140	-7.157	9.292
4000	-173.914	-0.042	-7.168	7.936
4500	-173.915	0.032	-7.169	6.879
5000	-173.883	0.094	-7.162	6.035
5500	-173.820	0.156	-7.150	5.345
6000	-173.727	0.223	-7.135	4.769

PARAMETERS FOR KC

LOG A	B	C
0.009	-0.40	-171.610

STD ERROR OF ESTIMATE = 0.001

R260. MN + NO + M2 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-77.924	-0.108	-5.619	55.893
500	-77.910	0.231	-5.591	32.833
1000	-77.673	0.539	-5.275	15.823
1500	-77.459	0.361	-5.097	10.172
2000	-77.327	0.194	-5.022	7.352
2500	-77.249	0.129	-4.987	5.663
3000	-77.194	0.093	-4.966	4.538
3500	-77.147	0.101	-4.952	3.735
4000	-77.088	0.138	-4.936	3.134
4500	-77.007	0.185	-4.918	2.665
5000	-76.903	0.231	-4.898	2.291
5500	-76.776	0.277	-4.871	1.986
6000	-76.628	0.319	-4.846	1.731

PARAMETERS FOR KC

LOG A	B	C
-1.647	0.14	-77.924

STD ERROR OF ESTIMATE = 0.000

R261. MN + HO + H2O + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-44.337	-1.140	-5.454	31.312
500	-44.520	-0.666	-5.933	18.366
1000	-44.647	0.016	-6.135	8.419
1500	-44.570	0.270	-6.076	5.187
2000	-44.391	0.423	-5.977	3.565
2500	-44.154	0.518	-5.871	2.579
3000	-43.874	0.594	-5.769	1.939
3500	-43.553	0.662	-5.673	1.481
4000	-43.179	0.731	-5.573	1.144
4500	-42.736	0.853	-5.470	0.882
5000	-42.207	1.103	-5.361	0.676
5500	-41.579	1.536	-5.244	0.509
6000	-40.844	1.567	-5.114	0.373

PARAMETERS FOR KC

LOG A	B	C
-1.135	-0.04	-44.337

STD ERROR OF ESTIMATE = 0.008

R262. MN + HO2 + HNO + HO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-61.720	0.142	-1.061	45.010
500	-61.717	-0.076	-1.057	26.747
1000	-61.757	-0.050	-1.113	13.294
1500	-61.777	-0.036	-1.129	8.754
2000	-61.797	-0.045	-1.139	6.504
2500	-61.823	-0.059	-1.151	5.152
3000	-61.856	-0.074	-1.164	4.253
3500	-61.897	-0.087	-1.176	3.608
4000	-61.944	-0.099	-1.187	3.125
4500	-61.995	-0.110	-1.200	2.748
5000	-62.053	-0.119	-1.212	2.447
5500	-62.113	-0.124	-1.224	2.200
6000	-62.176	-0.127	-1.235	1.995

PARAMETERS FOR KC

LOG A	B	C
-0.184	-0.01	-61.720

STD ERROR OF ESTIMATE = 0.000

R263. MN + HO2 + H2 + NO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-87.102	0.625	-9.125	61.854
500	-86.965	0.847	-8.785	36.093
1000	-86.496	0.851	-8.135	17.126
1500	-86.171	0.494	-7.869	10.837
2000	-85.973	0.316	-7.750	7.701
2500	-85.833	0.256	-7.688	5.823
3000	-85.713	0.233	-7.644	4.574
3500	-85.591	0.262	-7.606	3.682
4000	-85.445	0.323	-7.566	3.015
4500	-85.265	0.396	-7.525	2.496
5000	-85.050	0.470	-7.480	2.083
5500	-84.794	0.548	-7.431	1.745
6000	-84.502	0.624	-7.380	1.465

PARAMETERS FOR KC

LOG A	B	C
-2.789	0.29	-87.102

STD ERROR OF ESTIMATE = 0.003

R264. MN + HO2 + H2O + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-131.230	-0.146	-2.225	95.708
500	-131.332	-0.771	-2.472	56.865
1000	-131.776	-0.862	-3.083	28.126
1500	-132.152	-0.629	-3.391	18.513
2000	-132.405	-0.396	-3.539	13.694
2500	-132.557	-0.217	-3.607	10.799
3000	-132.632	-0.085	-3.634	8.868
3500	-132.648	0.013	-3.640	7.487
4000	-132.622	0.088	-3.632	6.453
4500	-132.563	0.144	-3.618	5.646
5000	-132.479	0.188	-3.601	5.003
5500	-132.373	0.233	-3.581	4.477
6000	-132.247	0.278	-3.560	4.039

PARAMETERS FOR KC

LOG A	B	C
0.308	-0.28	-131.230

STD ERROR OF ESTIMATE = 0.002

R265. MN + H2O + MNO + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-8.414	0.180	-4.462	5.195
500	-8.295	0.926	-4.176	2.715
1000	-7.654	1.351	-3.305	0.951
1500	-7.084	0.984	-2.835	0.413
2000	-6.719	0.545	-2.622	0.162
2500	-6.515	0.287	-2.531	0.016
3000	-6.416	0.104	-2.496	-0.077
3500	-6.396	0.001	-2.488	-0.144
4000	-6.410	-0.069	-2.491	-0.194
4500	-6.454	-0.069	-2.499	-0.233
5000	-6.477	-0.076	-2.507	-0.265
5500	-6.516	-0.080	-2.516	-0.291
6000	-6.557	-0.086	-2.521	-0.313

PARAMETERS FOR KC

LOG A	B	C
-2.140	0.41	-8.414

STD ERROR OF ESTIMATE = 0.002

R266. MN + NO + MNO + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	25.173	-0.852	-4.297	-19.386
500	25.085	0.029	-4.518	-11.952
1000	25.382	0.828	-4.185	-6.453
1500	25.605	0.863	-3.814	-4.592
2000	26.217	0.774	-3.577	-3.645
2500	26.560	0.676	-3.415	-3.068
3000	26.802	0.605	-3.299	-2.679
3500	27.188	0.562	-3.209	-2.388
4000	27.499	0.614	-3.128	-2.184
4500	27.832	0.699	-3.051	-2.016
5000	28.219	0.826	-2.972	-1.880
5500	28.661	0.979	-2.887	-1.768
6000	29.227	1.142	-2.794	-1.671

PARAMETERS FOR KC

LOG A	B	C
-1.628	0.22	25.173

STD ERROR OF ESTIMATE = 0.006

R267. MN + NO + NO + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-102.100	0.029	-3.989	73.969
500	-102.110	-0.157	-4.015	43.755
1000	-102.283	-0.447	-4.242	21.427
1500	-102.505	-0.419	-4.423	13.968
2000	-102.697	-0.346	-4.532	10.232
2500	-102.855	-0.292	-4.603	7.985
3000	-102.992	-0.261	-4.654	6.486
3500	-103.119	-0.240	-4.693	5.413
4000	-103.236	-0.229	-4.723	4.608
4500	-103.347	-0.222	-4.750	3.981
5000	-103.457	-0.213	-4.773	3.479
5500	-103.560	-0.201	-4.793	3.068
6000	-103.656	-0.182	-4.810	2.725

PARAMETERS FOR KC

LOG A	B	C
-0.483	-0.13	-102.100

STD ERROR OF ESTIMATE = 0.001

R268. MN + NO2 + MNO + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-52.542	-0.391	2.440	39.049
500	-52.662	-0.692	2.137	23.487
1000	-52.934	-0.362	1.747	11.951
1500	-53.065	-0.194	1.639	8.089
2000	-53.151	-0.167	1.589	6.155
2500	-53.239	-0.184	1.550	4.992
3000	-53.337	-0.214	1.514	4.217
3500	-53.453	-0.248	1.478	3.661
4000	-53.587	-0.284	1.443	3.244
4500	-53.737	-0.321	1.407	2.917
5000	-53.906	-0.358	1.372	2.655
5500	-54.095	-0.395	1.336	2.441
6000	-54.302	-0.432	1.299	2.261

PARAMETERS FOR KC

LOG A	B	C
0.957	-0.16	-52.542

STD ERROR OF ESTIMATE = 0.002

X269. HN + NO2 + HO + N2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-68.820	0.594	-4.209	49.527
500	-68.680	0.687	-3.855	29.178
1000	-68.397	0.506	-3.454	14.194
1500	-68.132	0.571	-3.241	9.218
2000	-67.824	0.659	-3.063	6.742
2500	-67.478	0.722	-2.908	5.262
3000	-67.106	0.760	-2.774	4.283
3500	-66.721	0.784	-2.655	3.586
4000	-66.326	0.797	-2.549	3.067
4500	-65.923	0.805	-2.455	2.665
5000	-65.519	0.811	-2.369	2.345
5500	-65.113	0.816	-2.292	2.087
6000	-64.703	0.821	-2.222	1.871

PARAMETERS FOR KC

LOG A	B	C
-1.580	0.24	-68.820

STD ERROR OF ESTIMATE = 0.003

X270. HN + NO2 + HO2 + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-92.922	-0.504	-0.483	68.308
500	-93.055	-0.773	-0.821	40.495
1000	-93.460	-0.759	-1.382	20.124
1500	-93.793	-0.577	-1.655	13.303
2000	-94.051	-0.408	-1.804	9.883
2500	-94.271	-0.417	-1.902	7.825
3000	-94.473	-0.401	-1.976	6.450
3500	-94.675	-0.401	-2.039	5.466
4000	-94.879	-0.414	-2.093	4.727
4500	-95.089	-0.433	-2.143	4.150
5000	-95.310	-0.452	-2.189	3.687
5500	-95.542	-0.472	-2.233	3.309
6000	-95.782	-0.487	-2.276	2.991

PARAMETERS FOR KC

LOG A	B	C
0.658	-0.28	-92.922

STD ERROR OF ESTIMATE = 0.000

X271. HN + N2O + HNO + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-85.822	-0.956	2.660	63.491
500	-86.392	-1.536	1.977	38.084
1000	-86.820	-1.315	0.959	19.184
1500	-87.436	-1.184	0.457	12.839
2000	-88.024	-1.172	0.120	9.645
2500	-88.616	-1.198	-0.145	7.715
3000	-89.223	-1.235	-0.366	6.420
3500	-89.851	-1.272	-0.560	5.488
4000	-90.497	-1.310	-0.731	4.785
4500	-91.161	-1.348	-0.888	4.233
5000	-91.844	-1.382	-1.032	3.789
5500	-92.542	-1.412	-1.165	3.422
6000	-93.255	-1.435	-1.289	3.115

PARAMETERS FOR KC

LOG A	B	C
2.054	-0.54	-85.822

STD ERROR OF ESTIMATE = 0.001

X272. HN + O + M + HNO + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-125.771	-3.924	-29.032	90.235
500	-126.442	-2.733	-30.779	53.154
1000	-127.297	-1.016	-32.034	25.734
1500	-127.660	-0.535	-32.334	18.623
2000	-127.889	-0.414	-32.466	12.095
2500	-128.093	-0.409	-32.557	9.394
3000	-128.306	-0.455	-32.636	7.606
3500	-128.553	-0.533	-32.712	6.336
4000	-128.844	-0.632	-32.788	5.390
4500	-129.187	-0.744	-32.869	4.658
5000	-129.588	-0.860	-32.954	4.075
5500	-130.047	-0.976	-33.041	3.600
6000	-130.563	-1.087	-33.131	3.207

PARAMETERS FOR KC

LOG A	B	C
-3.010	0.41	-125.771

STD ERROR OF ESTIMATE = 0.011

X273. HN + O = HO + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-27.114	-0.068	-1.266	19.602
500	-27.125	-0.052	-1.296	11.576
1000	-27.178	-0.170	-1.364	5.644
1500	-27.278	-0.211	-1.445	3.659
2000	-27.379	-0.197	-1.503	2.665
2500	-27.472	-0.177	-1.544	2.065
3000	-27.552	-0.154	-1.576	1.664
3500	-27.618	-0.110	-1.597	1.377
4000	-27.651	-0.032	-1.606	1.162
4500	-27.632	0.085	-1.604	0.994
5000	-27.544	0.243	-1.587	0.859
5500	-27.366	0.426	-1.556	0.750
6000	-27.088	0.624	-1.511	0.661

PARAMETERS FOR KC

LOG A	B	C
-0.100	-0.06	-27.114

STD ERROR OF ESTIMATE = 0.001

X274. HN + O2 = HNO + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-6.653	-0.470	-1.100	4.639
500	-6.702	-0.002	-1.239	2.661
1000	-6.503	0.646	-0.988	1.206
1500	-6.156	0.691	-0.706	0.743
2000	-5.849	0.513	-0.528	0.524
2500	-5.655	0.258	-0.441	0.398
3000	-5.590	0.002	-0.417	0.317
3500	-5.645	-0.213	-0.433	0.258
4000	-5.796	-0.382	-0.472	0.214
4500	-6.019	-0.506	-0.525	0.177
5000	-6.296	-0.596	-0.583	0.148
5500	-6.611	-0.663	-0.644	0.122
6000	-6.957	-0.717	-0.704	0.099

PARAMETERS FOR KC

LOG A	B	C
-0.762	0.17	-6.653

STD ERROR OF ESTIMATE = 0.004

X275. HN + O2 = HO + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-58.940	0.314	1.931	43.627
500	-58.922	-0.083	1.983	26.189
1000	-59.053	-0.352	1.813	13.303
1500	-59.239	-0.383	1.663	8.994
2000	-59.445	-0.458	1.546	6.834
2500	-59.707	-0.595	1.430	5.531
3000	-60.044	-0.757	1.306	4.660
3500	-60.461	-0.905	1.179	4.033
4000	-60.946	-1.028	1.050	3.560
4500	-61.483	-1.120	0.922	3.187
5000	-62.059	-1.179	0.802	2.887
5500	-62.658	-1.216	0.687	2.640
6000	-63.272	-1.235	0.579	2.431

PARAMETERS FOR KC

LOG A	B	C
0.765	-0.11	-58.940

STD ERROR OF ESTIMATE = 0.003

X276. HN + O2 = HO2 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	27.953	-0.680	-1.300	-20.769
500	27.890	0.022	-1.478	-12.510
1000	28.076	0.526	-1.239	-6.404
1500	28.343	0.516	-1.022	-4.352
2000	28.569	0.361	-0.892	-3.315
2500	28.696	0.140	-0.834	-2.689
3000	28.714	-0.078	-0.829	-2.272
3500	28.634	-0.236	-0.854	-1.973
4000	28.497	-0.315	-0.891	-1.749
4500	28.344	-0.311	-0.929	-1.577
5000	28.213	-0.234	-0.958	-1.440
5500	28.136	-0.113	-0.976	-1.328
6000	28.131	0.034	-0.980	-1.235

PARAMETERS FOR KC

LOG A	B	C
-0.678	0.12	27.953

STD ERROR OF ESTIMATE = 0.003

X277. HNO + M = HO + N + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	98.657	3.856	27.766	-70.633
500	99.317	2.681	29.483	-41.578
1000	100.119	0.846	30.670	-20.090
1500	100.382	0.324	30.889	-12.964
2000	100.510	0.217	30.963	-9.430
2500	100.621	0.232	31.013	-7.329
3000	100.754	0.301	31.060	-5.942
3500	100.935	0.423	31.115	-4.959
4000	101.193	0.600	31.182	-4.228
4500	101.555	0.829	31.265	-3.664
5000	102.044	1.103	31.367	-3.216
5500	102.681	1.402	31.485	-2.850
6000	103.475	1.711	31.620	-2.546

PARAMETERS FOR KC

LOG A	B	C
2.910	-0.47	98.657

STD ERROR OF ESTIMATE = 0.012

X278. HNO + HNO = H2O + N2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-85.788	0.697	-7.806	61.176
500	-85.633	0.684	-7.407	35.809
1000	-85.482	0.056	-7.171	17.115
1500	-85.442	0.172	-7.142	10.888
2000	-85.281	0.475	-7.052	7.777
2500	-84.973	0.748	-6.914	5.917
3000	-84.545	0.963	-6.758	4.681
3500	-84.019	1.132	-6.597	3.804
4000	-83.417	1.268	-6.437	3.151
4500	-82.754	1.380	-6.281	2.646
5000	-82.039	1.476	-6.130	2.246
5500	-81.278	1.568	-5.985	1.923
6000	-80.472	1.658	-5.846	1.654

PARAMETERS FOR KC

LOG A	B	C
-2.045	0.13	-85.788

STD ERROR OF ESTIMATE = 0.002

X279. HNO + HO = H2 + NO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-25.382	0.283	-8.059	16.844
500	-25.248	0.923	-7.728	9.346
1000	-24.739	0.901	-7.022	3.872
1500	-24.394	0.535	-6.736	2.083
2000	-24.176	0.361	-6.611	1.197
2500	-24.010	0.313	-6.537	0.671
3000	-23.857	0.307	-6.480	0.321
3500	-23.694	0.349	-6.430	0.074
4000	-23.501	0.422	-6.379	-0.110
4500	-23.270	0.506	-6.325	-0.252
5000	-22.997	0.589	-6.268	-0.364
5500	-22.681	0.672	-6.207	-0.455
6000	-22.326	0.751	-6.145	-0.530

PARAMETERS FOR KC

LOG A	B	C
-2.604	0.31	-25.382

STD ERROR OF ESTIMATE = 0.003

X280. HNO + HO = H2O + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-69.510	-0.288	-1.157	50.698
500	-69.615	-0.695	-1.415	30.118
1000	-70.019	-0.812	-1.970	14.872
1500	-70.375	-0.593	-2.262	9.759
2000	-70.608	-0.351	-2.400	7.190
2500	-70.734	-0.158	-2.456	5.647
3000	-70.776	-0.011	-2.470	4.615
3500	-70.751	0.100	-2.464	3.879
4000	-70.678	0.187	-2.445	3.328
4500	-70.568	0.254	-2.419	2.898
5000	-70.426	0.307	-2.389	2.556
5500	-70.260	0.357	-2.357	2.277
6000	-70.071	0.405	-2.325	2.044

PARAMETERS FOR KC

LOG A	B	C
0.492	-0.27	-69.510

STD ERROR OF ESTIMATE = 0.002

X281. HNO + HO2 = H2O + NO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-78.688	0.245	-4.663	56.659
500	-78.670	-0.079	-4.609	33.378
1000	-78.842	-0.500	-4.830	16.175
1500	-79.087	-0.435	-5.030	10.424
2000	-79.254	-0.229	-5.128	7.539
2500	-79.318	-0.033	-5.157	5.807
3000	-79.295	0.129	-5.148	4.651
3500	-79.195	0.261	-5.118	3.826
4000	-79.035	0.372	-5.075	3.209
4500	-78.826	0.465	-5.026	2.729
5000	-78.573	0.546	-4.973	2.348
5500	-78.278	0.628	-4.917	2.036
6000	-77.945	0.710	-4.859	1.778

PARAMETERS FOR KC

LOG A	B	C
-0.648	-0.12	-78.688

STD ERROR OF ESTIMATE = 0.001

X282. HNO + N = HO + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-127.273	0.881	0.308	93.355
500	-127.205	-0.186	0.503	55.707
1000	-127.655	-1.275	-0.077	27.880
1500	-128.310	-1.282	-0.609	18.560
2000	-128.914	-1.120	-0.955	13.877
2500	-129.435	-0.968	-1.188	11.053
3000	-129.894	-0.866	-1.355	9.165
3500	-130.317	-0.822	-1.484	7.811
4000	-130.735	-0.843	-1.595	6.792
4500	-131.179	-0.921	-1.699	5.997
5000	-131.676	-1.039	-1.801	5.359
5500	-132.241	-1.180	-1.906	4.836
6000	-132.883	-1.324	-2.016	4.396

PARAMETERS FOR KC

LOG A	B	C
1.145	-0.35	-127.273

STD ERROR OF ESTIMATE = 0.008

X283. HNO + NO = HO + N2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-16.278	0.985	-6.649	10.478
500	-16.018	1.379	-5.992	5.691
1000	-15.463	0.868	-5.201	2.243
1500	-15.067	0.765	-4.880	1.129
2000	-14.673	0.826	-4.652	0.587
2500	-14.239	0.906	-4.458	0.270
3000	-13.769	0.974	-4.288	0.066
3500	-13.268	1.032	-4.133	-0.075
4000	-12.739	1.081	-3.992	-0.177
4500	-12.186	1.126	-3.862	-0.252
5000	-11.613	1.169	-3.741	-0.310
5500	-11.018	1.211	-3.628	-0.354
6000	-10.401	1.253	-3.521	-0.390

PARAMETERS FOR KC

LOG A	B	C
-2.537	0.40	-16.278

STD ERROR OF ESTIMATE = 0.000

X284. HNO + NO = HO2 + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-40.380	-0.113	-2.923	28.959
500	-40.393	-0.081	-2.958	17.008
1000	-40.526	-0.397	-3.129	8.173
1500	-40.728	-0.383	-3.294	5.214
2000	-40.900	-0.301	-3.393	3.728
2500	-41.032	-0.233	-3.452	2.833
3000	-41.136	-0.187	-3.490	2.233
3500	-41.222	-0.153	-3.517	1.805
4000	-41.292	-0.130	-3.536	1.483
4500	-41.352	-0.112	-3.550	1.233
5000	-41.404	-0.094	-3.561	1.032
5500	-41.447	-0.077	-3.569	0.868
6000	-41.480	-0.055	-3.575	0.730

PARAMETERS FOR KC

LOG A	B	C
-0.299	-0.11	-40.380

STD ERROR OF ESTIMATE = 0.002

X285. HNO + NO2 = HO2 + N2O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-7.100	0.452	-3.143	4.517
500	-6.963	0.763	-2.798	2.431
1000	-6.640	0.556	-2.341	0.940
1500	-6.355	0.607	-2.112	0.464
2000	-6.027	0.704	-1.924	0.238
2500	-5.655	0.781	-1.757	0.110
3000	-5.250	0.834	-1.610	0.030
3500	-4.824	0.871	-1.479	-0.022
4000	-4.382	0.896	-1.362	-0.058
4500	-3.928	0.915	-1.255	-0.083
5000	-3.466	0.930	-1.157	-0.102
5500	-3.000	0.940	-1.068	-0.113
6000	-2.527	0.948	-0.987	-0.124

PARAMETERS FOR KC

LOG A	B	C
-1.396	0.26	-7.100

STD ERROR OF ESTIMATE = 0.002

X286. HNO + O = HO + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-52.287	0.784	3.031	38.988
500	-52.220	-0.081	3.222	23.528
1000	-52.550	-0.998	2.801	12.097
1500	-53.083	-1.074	2.369	8.251
2000	-53.596	-0.971	2.074	6.310
2500	-54.052	-0.853	1.871	5.133
3000	-54.454	-0.759	1.723	4.343
3500	-54.816	-0.692	1.612	3.775
4000	-55.150	-0.646	1.522	3.346
4500	-55.464	-0.614	1.447	3.010
5000	-55.763	-0.583	1.385	2.739
5500	-56.047	-0.553	1.331	2.518
6000	-56.315	-0.518	1.283	2.332

PARAMETERS FOR KC

LOG A	B	C
1.528	-0.28	-52.287

STD ERROR OF ESTIMATE = 0.007

X287. HNO + O = HO2 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	34.606	-0.210	-0.200	-25.408
500	34.592	0.024	-0.239	-15.171
1000	34.579	-0.120	-0.251	-7.610
1500	34.499	-0.175	-0.316	-5.095
2000	34.418	-0.152	-0.364	-3.839
2500	34.351	-0.118	-0.393	-3.087
3000	34.304	-0.080	-0.412	-2.589
3500	34.279	-0.023	-0.421	-2.231
4000	34.293	0.067	-0.419	-1.963
4500	34.363	0.195	-0.404	-1.754
5000	34.509	0.362	-0.375	-1.588
5500	34.747	0.550	-0.332	-1.450
6000	35.088	0.751	-0.276	-1.334

PARAMETERS FOR KC

LOG A	B	C
0.084	-0.04	34.606

STD ERROR OF ESTIMATE = 0.001

X288. HNO + O2 = HO + NO2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-6.398	0.705	-0.509	4.578
500	-6.260	0.609	-0.154	2.702
1000	-6.119	0.010	0.066	1.352
1500	-6.174	-0.189	0.024	0.905
2000	-6.294	-0.291	-0.043	0.679
2500	-6.468	-0.411	-0.120	0.539
3000	-6.707	-0.543	-0.208	0.443
3500	-7.008	-0.657	-0.299	0.372
4000	-7.359	-0.744	-0.393	0.316
4500	-7.746	-0.799	-0.485	0.270
5000	-8.153	-0.821	-0.570	0.232
5500	-8.563	-0.821	-0.649	0.199
6000	-8.970	-0.803	-0.720	0.170

PARAMETERS FOR KC

LOG A	B	C
-0.191	0.05	-6.398

STD ERROR OF ESTIMATE = 0.006

x289. HNO + O2 = HO2 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	2.780	0.172	2.997	-1.383
500	2.795	-0.007	3.040	-0.558
1000	2.704	-0.302	2.926	0.049
1500	2.538	-0.347	2.792	0.240
2000	2.352	-0.413	2.685	0.330
2500	2.116	-0.536	2.581	0.379
3000	1.812	-0.683	2.470	0.407
3500	1.436	-0.818	2.355	0.425
4000	0.998	-0.929	2.237	0.435
4500	0.512	-1.010	2.122	0.439
5000	-0.006	-1.060	2.014	0.440
5500	-0.545	-1.092	1.911	0.440
6000	-1.096	-1.108	1.814	0.436

PARAMETERS FOR KC

LOG A	B	C
0.950	-0.09	2.780

STD ERROR OF ESTIMATE = 0.003

x290. HO + HO = H2 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-18.984	-0.422	-7.550	12.266
500	-18.988	0.314	-7.574	6.644
1000	-18.620	0.891	-7.088	2.520
1500	-18.220	0.724	-6.760	1.178
2000	-17.882	0.652	-6.568	0.518
2500	-17.542	0.724	-6.417	0.132
3000	-17.150	0.850	-6.272	-0.122
3500	-16.686	1.006	-6.131	-0.298
4000	-16.142	1.166	-5.986	-0.426
4500	-15.524	1.305	-5.840	-0.522
5000	-14.844	1.410	-5.698	-0.596
5500	-14.118	1.493	-5.558	-0.654
6000	-13.356	1.554	-5.425	-0.700

PARAMETERS FOR KC

LOG A	B	C
-2.413	0.26	-18.984

STD ERROR OF ESTIMATE = 0.003

x291. HO + HO = H2O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-17.223	-1.072	-4.188	11.710
500	-17.395	-0.614	-4.637	6.590
1000	-17.469	0.186	-4.771	2.775
1500	-17.292	0.481	-4.631	1.508
2000	-17.012	0.620	-4.474	0.880
2500	-16.682	0.695	-4.327	0.514
3000	-16.322	0.748	-4.193	0.272
3500	-15.935	0.792	-4.076	0.104
4000	-15.528	0.833	-3.967	-0.018
4500	-15.104	0.868	-3.866	-0.112
5000	-14.663	0.890	-3.774	-0.183
5500	-14.213	0.910	-3.688	-0.241
6000	-13.756	0.923	-3.608	-0.288

PARAMETERS FOR KC

LOG A	B	C
-1.035	0.01	-17.223

STD ERROR OF ESTIMATE = 0.009

x292. HO + HO2 = H2O + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-72.290	-0.460	-4.154	52.081
500	-72.410	-0.688	-4.455	30.676
1000	-72.723	-0.510	-4.896	14.823
1500	-72.913	-0.246	-5.054	9.519
2000	-72.960	0.062	-5.085	6.860
2500	-72.850	0.378	-5.037	5.268
3000	-72.588	0.672	-4.940	4.208
3500	-72.187	0.918	-4.819	3.454
4000	-71.676	1.116	-4.682	2.893
4500	-71.080	1.264	-4.541	2.459
5000	-70.420	1.367	-4.403	2.116
5500	-69.715	1.449	-4.268	1.837
6000	-68.975	1.513	-4.139	1.608

PARAMETERS FOR KC

LOG A	B	C
-0.457	-0.17	-72.290

STD ERROR OF ESTIMATE = 0.005

X293. HO + H2O = HO2 + H2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	53.306	0.038	-3.396	-39.815
500	53.422	1.002	-3.119	-24.032
1000	54.103	1.401	-2.192	-12.303
1500	54.693	0.970	-1.706	-8.341
2000	55.078	0.590	-1.483	-6.342
2500	55.308	0.346	-1.380	-5.136
3000	55.438	0.178	-1.332	-4.330
3500	55.501	0.088	-1.312	-3.752
4000	55.534	0.050	-1.304	-3.319
4500	55.556	0.041	-1.299	-2.981
5000	55.576	0.043	-1.295	-2.712
5500	55.597	0.044	-1.290	-2.491
6000	55.619	0.041	-1.286	-2.308

PARAMETERS FOR KC

LOG A	B	C
-1.955	0.43	53.306

STD ERROR OF ESTIMATE = 0.002

X294. HO + NO = HO2 + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	86.893	-0.994	-3.231	-64.396
500	86.812	0.105	-3.461	-38.699
1000	87.129	0.878	-3.052	-19.707
1500	87.582	0.899	-2.685	-13.346
2000	88.014	0.819	-2.438	-10.149
2500	88.403	0.735	-2.264	-8.220
3000	88.758	0.679	-2.135	-6.932
3500	89.095	0.669	-2.033	-6.006
4000	89.443	0.713	-1.941	-5.309
4500	89.827	0.809	-1.851	-4.764
5000	90.272	0.945	-1.760	-4.327
5500	90.794	1.103	-1.663	-3.968
6000	91.403	1.269	-1.559	-3.666

PARAMETERS FOR KC

LOG A	B	C
-1.444	0.24	86.893

STD ERROR OF ESTIMATE = 0.006

X295. HO + NO2 = HO2 + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	9.178	-0.533	3.506	-5.981
500	9.055	-0.616	3.194	-3.260
1000	8.823	-0.312	2.860	-1.303
1500	8.712	-0.158	2.768	-0.665
2000	8.645	-0.122	2.728	-0.349
2500	8.584	-0.125	2.701	-0.160
3000	8.519	-0.140	2.678	-0.036
3500	8.444	-0.161	2.654	0.053
4000	8.357	-0.185	2.630	0.119
4500	8.258	-0.211	2.607	0.169
5000	8.147	-0.239	2.584	0.208
5500	8.018	-0.271	2.560	0.241
6000	7.874	-0.305	2.534	0.266

PARAMETERS FOR KC

LOG A	B	C
1.141	-0.14	9.178

STD ERROR OF ESTIMATE = 0.002

X296. HO + N2O = HO2 + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-24.102	-1.098	3.726	18.481
500	-24.375	-1.460	3.034	11.317
1000	-25.063	-1.265	2.072	5.930
1500	-25.661	-1.148	1.586	4.085
2000	-26.227	-1.127	1.259	3.141
2500	-26.793	-1.139	1.006	2.563
3000	-27.367	-1.161	0.798	2.167
3500	-27.954	-1.185	0.616	1.880
4000	-28.553	-1.211	0.456	1.660
4500	-29.166	-1.238	0.312	1.485
5000	-29.791	-1.263	0.180	1.342
5500	-30.429	-1.288	0.059	1.222
6000	-31.079	-1.308	-0.054	1.120

PARAMETERS FOR KC

LOG A	B	C
2.238	-0.52	-24.102

STD ERROR OF ESTIMATE = 0.002

X297. HO + O + M = HO2 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-64.051	-4.066	-27.966	45.225
500	-64.725	-2.657	-29.722	26.407
1000	-65.540	-0.966	-30.921	12.480
1500	-65.683	-0.499	-31.205	7.869
2000	-66.092	-0.369	-31.327	5.591
2500	-66.270	-0.350	-31.406	4.242
3000	-66.450	-0.381	-31.472	3.353
3500	-66.656	-0.446	-31.536	2.728
4000	-66.900	-0.533	-31.601	2.265
4500	-67.192	-0.634	-31.669	1.910
5000	-67.535	-0.741	-31.742	1.628
5500	-67.934	-0.852	-31.817	1.400
6000	-68.387	-0.960	-31.896	1.212

PARAMETERS FOR KC

LOG A	B	C
-2.826	0.43	-64.051

STD ERROR OF ESTIMATE = 0.011

X298. HO + O2 = HO2 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	55.067	-0.612	-0.034	-40.371
500	55.015	0.074	-0.182	-24.086
1000	55.254	0.696	0.125	-12.048
1500	55.621	0.727	0.423	-8.011
2000	55.948	0.558	0.611	-5.980
2500	56.168	0.317	0.710	-4.754
3000	56.266	0.076	0.747	-3.936
3500	56.252	-0.126	0.743	-3.350
4000	56.148	-0.283	0.715	-2.911
4500	55.976	-0.396	0.675	-2.571
5000	55.757	-0.477	0.629	-2.299
5500	55.502	-0.539	0.580	-2.078
6000	55.219	-0.590	0.531	-1.896

PARAMETERS FOR KC

LOG A	B	C
-0.578	0.18	55.067

STD ERROR OF ESTIMATE = 0.003

X299. H2 + NO = H2O + N

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	33.587	-1.032	0.165	-24.581
500	33.390	-0.697	-0.342	-14.667
1000	33.026	-0.523	-0.860	-7.404
1500	32.889	-0.071	-0.979	-5.005
2000	32.936	0.229	-0.955	-3.807
2500	33.095	0.389	-0.884	-3.084
3000	33.320	0.501	-0.803	-2.602
3500	33.594	0.581	-0.721	-2.254
4000	33.909	0.663	-0.637	-1.990
4500	34.271	0.768	-0.552	-1.783
5000	34.696	0.902	-0.465	-1.615
5500	35.197	1.059	-0.373	-1.477
6000	35.784	1.228	-0.273	-1.358

PARAMETERS FOR KC

LOG A	B	C
0.511	-0.19	33.587

STD ERROR OF ESTIMATE = 0.008

X300. H2 + NO2 = H2O + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-44.128	-0.571	6.902	33.854
500	-44.367	-1.618	6.313	20.772
1000	-45.280	-1.713	5.052	11.000
1500	-45.981	-1.128	4.474	7.676
2000	-46.432	-0.712	4.211	5.993
2500	-46.724	-0.471	4.081	4.976
3000	-46.919	-0.318	4.010	4.294
3500	-47.057	-0.249	3.966	3.805
4000	-47.177	-0.235	3.934	3.438
4500	-47.298	-0.252	3.906	3.150
5000	-47.429	-0.282	3.879	2.920
5500	-47.579	-0.315	3.850	2.732
6000	-47.745	-0.346	3.820	2.574

PARAMETERS FOR KC

LOG A	B	C
3.097	-0.58	-44.128

STD ERROR OF ESTIMATE = 0.005

X301. H2 + N2O = H2O + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-77.408	-1.136	7.122	58.296
500	-77.797	-2.462	6.153	35.349
1000	-79.166	-2.666	4.264	18.233
1500	-80.354	-2.118	3.292	12.426
2000	-81.305	-1.717	2.742	9.483
2500	-82.101	-1.485	2.386	7.699
3000	-82.805	-1.339	2.130	6.497
3500	-83.455	-1.273	1.928	5.632
4000	-84.087	-1.261	1.760	4.979
4500	-84.722	-1.279	1.611	4.466
5000	-85.367	-1.306	1.475	4.054
5500	-86.026	-1.332	1.349	3.713
6000	-86.698	-1.349	1.232	3.428

PARAMETERS FOR KC

LOG A	B	C
4.194	-0.96	-77.408

STD ERROR OF ESTIMATE = 0.001

X302. H2 + O + M = H2O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-117.357	-4.104	-24.570	85.040
500	-118.147	-3.659	-26.603	50.439
1000	-119.643	-2.367	-28.729	24.783
1500	-120.576	-1.469	-29.499	16.210
2000	-121.170	-0.959	-29.844	11.933
2500	-121.578	-0.696	-30.026	9.378
3000	-121.888	-0.559	-30.140	7.683
3500	-122.157	-0.534	-30.224	6.480
4000	-122.434	-0.583	-30.297	5.584
4500	-122.748	-0.675	-30.370	4.891
5000	-123.111	-0.784	-30.447	4.340
5500	-123.531	-0.896	-30.527	3.891
6000	-124.006	-1.001	-30.610	3.520

PARAMETERS FOR KC

LOG A	B	C
-0.870	-0.00	-117.357

STD ERROR OF ESTIMATE = 0.013

X303. H2 + O2 = H2O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	1.761	-0.650	3.362	-0.556
500	1.593	-0.928	2.937	-0.054
1000	1.151	-0.705	2.317	0.255
1500	0.928	-0.243	2.129	0.330
2000	0.870	-0.032	2.094	0.362
2500	0.860	-0.029	2.090	0.382
3000	0.828	-0.102	2.079	0.394
3500	0.751	-0.214	2.055	0.402
4000	0.614	-0.333	2.019	0.408
4500	0.420	-0.437	1.974	0.410
5000	0.181	-0.520	1.924	0.413
5500	-0.095	-0.583	1.870	0.413
6000	-0.400	-0.631	1.817	0.412

PARAMETERS FOR KC

LOG A	B	C
1.377	-0.24	1.761

STD ERROR OF ESTIMATE = 0.006

X304. N + N + M = N2 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-225.930	-2.975	-27.458	163.988
500	-226.522	-2.867	-28.980	97.285
1000	-227.774	-2.121	-30.747	47.970
1500	-228.692	-1.606	-31.498	31.524
2000	-229.424	-1.337	-31.918	23.307
2500	-230.056	-1.200	-32.201	18.382
3000	-230.648	-1.167	-32.415	15.107
3500	-231.252	-1.245	-32.599	12.770
4000	-231.928	-1.443	-32.777	11.020
4500	-232.734	-1.750	-32.964	9.661
5000	-233.720	-2.142	-33.168	8.575
5500	-234.922	-2.582	-33.391	7.686
6000	-236.358	-3.035	-33.636	6.942

PARAMETERS FOR KC

LOG A	B	C
-1.765	0.11	-225.930

STD ERROR OF ESTIMATE = 0.004

X305. N + NO = N2 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-74.986	0.097	-2.723	34.367
500	-74.985	-0.105	-2.719	32.179
1000	-75.105	-0.277	-2.878	15.783
1500	-75.227	-0.208	-2.978	10.309
2000	-75.318	-0.149	-3.029	7.567
2500	-75.383	-0.115	-3.059	5.920
3000	-75.440	-0.107	-3.078	4.822
3500	-75.501	-0.130	-3.096	4.036
4000	-75.585	-0.197	-3.117	3.446
4500	-75.715	-0.307	-3.146	2.987
5000	-75.913	-0.456	-3.186	2.620
5500	-76.194	-0.627	-3.237	2.318
6000	-76.568	-0.806	-3.299	2.064

PARAMETERS FOR KC

LOG A	B	C
-0.383	-0.07	-74.986

STD ERROR OF ESTIMATE = 0.001

X306. N + NO + M = N2O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-114.935	-2.871	-34.415	81.111
500	-115.335	-1.302	-35.475	47.269
1000	-115.582	0.022	-35.871	22.333
1500	-115.449	0.441	-35.769	14.093
2000	-115.183	0.609	-35.615	10.017
2500	-114.860	0.674	-35.471	7.599
3000	-114.523	0.673	-35.348	6.008
3500	-114.203	0.609	-35.248	4.884
4000	-113.932	0.481	-35.174	4.051
4500	-113.741	0.297	-35.127	3.412
5000	-113.657	0.066	-35.108	2.906
5500	-113.699	-0.191	-35.113	2.496
6000	-113.876	-0.458	-35.141	2.156

PARAMETERS FOR KC

LOG A	B	C
-5.448	0.88	-114.935

STD ERROR OF ESTIMATE = 0.012

X307. N + NO2 = NO + NO

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-77.715	0.461	6.737	58.435
500	-77.757	-0.721	6.655	35.439
1000	-78.306	-1.190	5.912	18.404
1500	-78.870	-1.057	5.453	12.681
2000	-79.368	-0.941	5.166	9.800
2500	-79.819	-0.860	4.965	8.060
3000	-80.239	-0.819	4.813	6.896
3500	-80.651	-0.830	4.687	6.059
4000	-81.086	-0.898	4.571	5.428
4500	-81.569	-1.020	4.458	4.933
5000	-82.125	-1.184	4.344	4.535
5500	-82.776	-1.374	4.223	4.209
6000	-83.529	-1.574	4.093	3.932

PARAMETERS FOR KC

LOG A	B	C
2.585	-0.38	-77.715

STD ERROR OF ESTIMATE = 0.003

X308. N + NO2 = N2 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-120.875	0.176	0.817	88.777
500	-120.945	-0.795	0.657	53.005
1000	-121.536	-1.285	-0.143	26.528
1500	-122.136	-1.093	-0.633	17.655
2000	-122.620	-0.829	-0.912	13.198
2500	-122.967	-0.557	-1.068	10.514
3000	-123.187	-0.323	-1.147	8.722
3500	-123.309	-0.165	-1.185	7.439
4000	-123.376	-0.099	-1.202	6.476
4500	-123.433	-0.122	-1.214	5.727
5000	-123.523	-0.218	-1.231	5.127
5500	-123.678	-0.359	-1.257	4.637
6000	-123.913	-0.521	-1.296	4.226

PARAMETERS FOR KC

LOG A	B	C
1.336	-0.40	-120.875

STD ERROR OF ESTIMATE = 0.002

X309. N + NO2 = N2O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-41.706	0.662	-2.943	29.925
500	-41.555	0.739	-2.559	17.602
1000	-41.219	0.676	-2.090	8.550
1500	-40.854	0.782	-1.796	5.559
2000	-40.445	0.856	-1.560	4.077
2500	-40.006	0.899	-1.364	3.197
3000	-39.554	0.914	-1.198	2.619
3500	-39.103	0.894	-1.058	2.209
4000	-38.675	0.829	-0.943	1.905
4500	-38.291	0.720	-0.851	1.671
5000	-37.975	0.568	-0.782	1.486
5500	-37.747	0.390	-0.736	1.337
6000	-37.615	0.197	-0.711	1.210

PARAMETERS FOR KC

LOG A	B	C
-1.480	0.30	-41.706

STD ERROR OF ESTIMATE = 0.004

X310. N + N2O = NO + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-110.995	-0.104	6.957	82.877
500	-111.187	-1.565	6.495	50.016
1000	-112.192	-2.143	5.124	25.637
1500	-113.243	-2.047	4.271	17.431
2000	-114.241	-1.946	3.697	13.290
2500	-115.196	-1.874	3.270	10.783
3000	-116.125	-1.840	2.933	9.099
3500	-117.049	-1.854	2.649	7.886
4000	-117.996	-1.924	2.397	6.969
4500	-118.993	-2.047	2.163	6.249
5000	-120.063	-2.208	1.940	5.669
5500	-121.223	-2.391	1.722	5.190
6000	-122.482	-2.577	1.505	4.786

PARAMETERS FOR KC

LOG A	B	C
3.682	-0.76	-110.995

STD ERROR OF ESTIMATE = 0.008

X311. N + O + M = NO + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-150.944	-3.072	-24.735	109.621
500	-151.537	-2.762	-26.261	69.106
1000	-152.669	-1.844	-27.869	32.187
1500	-153.465	-1.398	-28.520	21.215
2000	-154.106	-1.188	-28.889	15.740
2500	-154.673	-1.085	-29.142	12.462
3000	-155.208	-1.060	-29.337	10.285
3500	-155.751	-1.115	-29.503	8.734
4000	-156.343	-1.246	-29.660	7.574
4500	-157.019	-1.443	-29.818	6.674
5000	-157.807	-1.686	-29.982	5.955
5500	-158.728	-1.955	-30.154	5.368
6000	-159.790	-2.229	-30.337	4.878

PARAMETERS FOR KC

LOG A	B	C
-1.382	0.19	-150.944

STD ERROR OF ESTIMATE = 0.005

X312. N + O2 = NO + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-31.826	0.382	3.197	24.025
500	-31.797	-0.031	3.279	14.613
1000	-31.875	-0.182	3.177	7.659
1500	-31.961	-0.172	3.108	5.335
2000	-32.066	-0.261	3.049	4.169
2500	-32.235	-0.418	2.974	3.466
3000	-32.492	-0.603	2.882	2.996
3500	-32.843	-0.795	2.776	2.656
4000	-33.295	-0.996	2.656	2.398
4500	-33.851	-1.205	2.526	2.193
5000	-34.515	-1.422	2.389	2.028
5500	-35.292	-1.642	2.243	1.890
6000	-36.184	-1.859	2.090	1.770

PARAMETERS FOR KC

LOG A	B	C
0.865	-0.05	-31.826

STD ERROR OF ESTIMATE = 0.002

X313. N + O2 + M = NO2 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-105.055	-3.151	-28.275	75.211
500	-105.577	-2.072	-29.637	44.280
1000	-106.238	-0.836	-30.604	21.442
1500	-106.556	-0.513	-30.865	13.869
2000	-106.804	-0.508	-31.006	10.109
2500	-107.089	-0.643	-31.133	7.868
3000	-107.461	-0.844	-31.268	6.385
3500	-107.943	-1.080	-31.414	5.331
4000	-108.552	-1.344	-31.575	4.544
4500	-109.301	-1.628	-31.750	3.934
5000	-110.197	-1.924	-31.937	3.448
5500	-111.244	-2.223	-32.134	3.049
6000	-112.445	-2.514	-32.340	2.716

PARAMETERS FOR KC

LOG A	B	C
-3.102	0.52	-105.055

STD ERROR OF ESTIMATE = 0.006

X314. NO + NO = N2 + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-43.160	-0.285	-5.920	30.342
500	-43.188	-0.074	-5.998	17.566
1000	-43.230	-0.095	-6.055	8.124
1500	-43.266	-0.036	-6.086	4.974
2000	-43.252	0.112	-6.078	3.398
2500	-43.148	0.303	-6.033	2.454
3000	-42.948	0.496	-5.960	1.826
3500	-42.658	0.665	-5.872	1.380
4000	-42.290	0.799	-5.773	1.048
4500	-41.864	0.898	-5.672	0.794
5000	-41.398	0.966	-5.575	0.592
5500	-40.902	1.015	-5.480	0.428
6000	-40.384	1.053	-5.389	0.294

PARAMETERS FOR KC

LOG A	B	C
-1.249	-0.02	-43.160

STD ERROR OF ESTIMATE = 0.001

X315. NO + NO = N2O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	36.009	0.201	-9.680	-28.510
500	36.202	1.460	-9.214	-17.837
1000	37.087	1.866	-8.002	-9.854
1500	38.016	1.839	-7.249	-7.122
2000	38.923	1.797	-6.726	-5.723
2500	39.813	1.759	-6.329	-4.863
3000	40.685	1.733	-6.011	-4.277
3500	41.548	1.724	-5.745	-3.850
4000	42.411	1.727	-5.514	-3.523
4500	43.278	1.740	-5.309	-3.262
5000	44.150	1.752	-5.126	-3.049
5500	45.029	1.764	-4.959	-2.872
6000	45.914	1.771	-4.804	-2.722

PARAMETERS FOR KC

LOG A	B	C
-4.066	0.69	36.009

STD ERROR OF ESTIMATE = 0.007

X316. NO + NO2 = N2O + O2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-9.880	0.280	-6.140	5.900
500	-9.758	0.770	-5.838	2.989
1000	-9.344	0.858	-5.267	0.891
1500	-8.893	0.954	-4.904	0.224
2000	-8.379	1.117	-4.609	-0.092
2500	-7.771	1.317	-4.338	-0.269
3000	-7.062	1.517	-4.080	-0.377
3500	-6.260	1.689	-3.834	-0.447
4000	-5.380	1.825	-3.599	-0.493
4500	-4.440	1.925	-3.377	-0.522
5000	-3.460	1.990	-3.171	-0.542
5500	-2.455	2.032	-2.979	-0.553
6000	-1.431	2.056	-2.801	-0.560

PARAMETERS FOR KC

LOG A	B	C
-2.346	0.35	-9.880

STD ERROR OF ESTIMATE = 0.006

X317. NO + N2O = NO2 + N2

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-33.280	-0.565	0.220	24.442
500	-33.430	-0.844	-0.160	14.577
1000	-33.886	-0.953	-0.788	7.233
1500	-34.373	-0.990	-1.182	4.750
2000	-34.873	-1.005	-1.469	3.490
2500	-35.377	-1.014	-1.695	2.723
3000	-35.886	-1.021	-1.880	2.203
3500	-36.398	-1.024	-2.038	1.827
4000	-36.910	-1.026	-2.174	1.541
4500	-37.424	-1.027	-2.295	1.316
5000	-37.938	-1.024	-2.404	1.134
5500	-38.447	-1.017	-2.501	0.981
6000	-38.953	-1.003	-2.588	0.854

PARAMETERS FOR KC

LOG A	B	C
1.097	-0.37	-33.280

STD ERROR OF ESTIMATE = 0.004

X318. NO + O + M = NO2 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-73.229	-3.533	-31.472	51.186
500	-73.780	-2.041	-32.916	29.667
1000	-74.363	-0.654	-33.781	13.783
1500	-74.595	-0.341	-33.973	8.534
2000	-74.738	-0.247	-34.055	5.940
2500	-74.854	-0.225	-34.107	4.402
3000	-74.969	-0.241	-34.150	3.389
3500	-75.100	-0.285	-34.190	2.675
4000	-75.257	-0.348	-34.231	2.146
4500	-75.450	-0.423	-34.276	1.741
5000	-75.682	-0.502	-34.326	1.420
5500	-75.952	-0.581	-34.377	1.159
6000	-76.261	-0.655	-34.430	0.946

PARAMETERS FOR KC

LOG A	B	C
-3.967	0.57	-73.229

STD ERROR OF ESTIMATE = 0.008

X319. NO + O2 = NO2 + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	45.889	-0.079	-3.540	-34.410
500	45.960	0.690	-3.376	-20.826
1000	46.431	1.008	-2.735	-10.745
1500	46.909	0.885	-2.345	-7.346
2000	47.302	0.680	-2.117	-5.631
2500	47.584	0.442	-1.991	-4.594
3000	47.747	0.216	-1.931	-3.900
3500	47.808	0.039	-1.911	-3.403
4000	47.791	-0.098	-1.919	-3.030
4500	47.718	-0.185	-1.932	-2.740
5000	47.610	-0.238	-1.955	-2.507
5500	47.484	-0.268	-1.980	-2.319
6000	47.345	-0.285	-2.003	-2.162

PARAMETERS FOR KC

LOG A	B	C
-1.719	0.33	45.889

STD ERROR OF ESTIMATE = 0.001

X320. N2 + O + M = N2O + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-39.949	-2.968	-31.692	26.744
500	-40.350	-1.197	-32.756	15.090
1000	-40.477	0.299	-32.993	6.550
1500	-40.222	0.649	-32.791	3.784
2000	-39.865	0.758	-32.586	2.450
2500	-39.477	0.789	-32.412	1.679
3000	-39.083	0.780	-32.270	1.186
3500	-38.702	0.739	-32.152	0.848
4000	-38.347	0.678	-32.057	0.605
4500	-38.026	0.604	-31.981	0.425
5000	-37.744	0.522	-31.922	0.286
5500	-37.505	0.436	-31.876	0.178
6000	-37.308	0.348	-31.842	0.092

PARAMETERS FOR KC

LOG A	B	C
-5.065	0.95	-39.949

STD ERROR OF ESTIMATE = 0.013

X321. N2 + O2 = N2O + O

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	79.169	0.486	-3.760	-58.852
500	79.390	1.534	-3.216	-35.403
1000	80.317	1.961	-1.947	-17.978
1500	81.282	1.875	-1.163	-12.096
2000	82.175	1.685	-0.648	-9.121
2500	82.961	1.456	-0.296	-7.317
3000	83.633	1.237	-0.051	-6.103
3500	84.206	1.059	0.127	-5.230
4000	84.701	0.928	0.259	-4.571
4500	85.142	0.842	0.363	-4.056
5000	85.548	0.786	0.449	-3.641
5500	85.931	0.749	0.521	-3.300
6000	86.298	0.718	0.585	-3.016

PARAMETERS FOR KC

LOG A	B	C
-2.817	0.71	79.169

STD ERROR OF ESTIMATE = 0.005

X322. O + O + M = O2 + M

THERMOCHEMICAL DATA

T (DEG K)	H (KCAL/MOLE)	CP (GIBBS/MOLE)	S (GIBBS/MOLE)	LOG KC (C IN MOLE/CC)
298	-119.118	-3.454	-27.932	85.596
500	-119.740	-2.731	-29.540	50.493
1000	-120.794	-1.662	-31.046	24.528
1500	-121.504	-1.226	-31.628	15.880
2000	-122.040	-0.927	-31.938	11.571
2500	-122.438	-0.667	-32.116	8.996
3000	-122.716	-0.457	-32.219	7.289
3500	-122.908	-0.320	-32.279	6.078
4000	-123.048	-0.250	-32.316	5.176
4500	-123.168	-0.238	-32.344	4.481
5000	-123.292	-0.264	-32.371	3.927
5500	-123.436	-0.313	-32.397	3.478
6000	-123.606	-0.370	-32.427	3.108

PARAMETERS FOR KC

LOG A	B	C
-2.248	0.24	-119.118

STD ERROR OF ESTIMATE = 0.007

5. TABLES OF KINETIC DATA

This section contains tables of kinetic data for reactions found in the literature for the 25 primary species*. The reactions are organized by reaction number as indicated in Section 3. For a given reaction number, data on the forward direction are given first followed by data on the reverse; the data are further organized by reference number. Where the REF column is blank, the entry is a continuation of the previous entry.

The headings for the table are as follows:

Heading		Description
REF		Reference code - listed in Section 9 Year of publication
DIR		Direction of reaction F = Forward R = Reverse
ORD		Order of reaction as studied 0, 1, 2, 3
A		Common logarithm of preexponential factor (mole-cc-sec) significant figures indicated by mantissa uncertainty in A indicated in parenthesis
B		Exponent of T
C		Activation energy (kcal/mole) uncertainty indicated in parenthesis
	note:	$k = 10^{A} T^{B} e^{-C/RT}$
T		Temperature at which reaction was studied - where no temperature is indicated, the review or calculation did not indicate a temperature range. - experimental references are accompanied by a temperature; where room temperature was implied 298-300K was assumed.
EXPERIMENTAL		Notes on experimental details
TYP		Type of reference X = experimental R = review or evaluation C = calculation or estimate
COMMENTS		Further information on the entry

- - - - -

* The literature was not searched for reactions of CH_3O which was included in the reaction list subsequent to the search.

When the B and C columns are blank, the determination was for one temperature only and B and C were not determined. Where a zero is found in the B and C columns, the determination was over a range of temperatures and the zero values were either given or implied.

1. CH + CHN → CH2 + CN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.52	0.6	8.			C	JOHNSTON-PARR CALC

2. CH + CHO → CH2 + CO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.7	0.5	6.			C	ORDER MAGNITUDE EST
	F	2	10.5	0.7	1.			C	JOHNSTON-PARR CALC

3. CH + CH2O → CHO + CH2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	10.3	0.5	5.			C	ESTIMATED BY ANALOGY
	F	2	11.04	0.7	4.			C	JOHNSTON-PARR CALC

4. CH + CH2O → CH3 + CO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

5. CH + CH3 = CH2 + CH2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.08	0.7	5.			C	JOHNSTON-PARR CALC
T1 1967	R	2	11.7	0.5	6.			C	ORDER MAGNITUDE EST

6. CH + CH30 = CHO + CH3

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

7. CH + CH3O = CH2 + CH2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

8. CH + CH3O = CH4 + CO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

9. CH + CH4 → CH2 + CH3

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.38	0.7	6.			C	JOHNSTON-PARR CALC
	F	2	11.7	0.5	6.			C	ORDER MAGNITUDE EST

10. CH + CO2 → CHO + CO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	10.0	0.5	6.			C	ORDER MAGNITUDE EST

11. CH + H + M → CH2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
E1 1963	F	2	12.15 (+-0.5)	0.5	0.			C	ESTIMATED
T1 1967	F	2	11.7	0.5	0.			C	ESTIMATED (REF E1)

12. CH + HN → CHN + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
MB 1967	R	2	11.78	0.67	40.5	1000-4000		C	JOHNSTON-PARR CALC

13. CH + HN = CH2 + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

14. CH + HN = CN + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
H28 1966	F	2	12.20	0.56	2.1			C	JOHNSTON-PARR CALC

15. CH + HNO = CHN + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

16. CH + HNO = CHO + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

17. CH + HNO → CH2 + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.80	0.5	0.			C	ORDER MAGNITUDE EST

18. CH + HNO → CH2O + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

19. CH + HNO → CN + H2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

20. CH + HO → CHO + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.7	0.5	10.			C	ORDER MAGNITUDE EST

21. CH + HO → CH2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
M28 1966	F	2	11.38	0.55	4.1			C	JOHNSTON-PARR CALC
M8 1967	R	2	11.28	0.68	25.7	1000-4000		C	JOHNSTON-PARR CALC
T1 1967	R	2	11.51	0.7	26.			C	ORDER MAGNITUDE EST

22. CH + HO + M → CH2O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

23. CH + HO → CO + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

24. CH + HO2 → CHO + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.7	0.5	6.			C	ORDER MAGNITUDE EST

25. CH + HO2 = CH2 + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
TI 1967	F	2	10.0	0.5	15.			C	ORDER MAGNITUDE EST

26. CH + HO2 = CH2O + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

27. CH + HO2 = CO + H2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

28. CH + HO2 = CO2 + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

29. CH + H2 → CH2 + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
M28 1966	F	2	11.87	0.57	6.0			C	JOHNSTON-PARR CALC
E1 1963	R	2	12.15	0.5	25.			C	ESTIMATED
MB 1967	R	2	11.43	0.67	25.7	1000-4000		C	JOHNSTON-PARR CALC
T1 1967	R	2	11.46	0.7	26.			C	ESTIMATED (REF E1) +JOHNSTON-PARR CALC

30. CH + H2 + M → CH3 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

31. CH + H2O → CHO + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

32. CH + H2O → CH2 + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	2	11.7	0.5	6.			C	ORDER MAGNITUDE EST

33. CH + H2O → CH2O + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

34. CH + H2O → CH3 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

35. CH + H2O + M → CH3O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

36. CH + N + M → CHN + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

37. CH • N • CN • H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

38. CH • NO • CHN • O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

39. CH • NO • CHO • N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

40. CH • NO • CN • HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

41. CH • NO • CO \ HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

42. CH • NO2 • CHN • O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

43. CH • NO2 • CHO • NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

44. CH • NO2 • CN • HO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

45. CH + NO2 = CO + HNO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

46. CH + NO2 = CO2 + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

47. CH + N2 = CHN + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

48. CH + N2 = CN + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

49. CH + N2O = CHN + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

50. CH + N2O = CHO + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

51. CH + N2O = CN + HNO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

52. CH + O + M = CHO + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	3	16.0	-0.5	0.			C	ORDER MAGNITUDE EST

53. CH + O = CO + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.7	0.5	4.			C	ORDER MAGNITUDE EST

54. CH + O2 = CHO + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.7	0.5	6.			C	ORDER MAGNITUDE EST

55. CH + O2 = CO + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

56. CH + O2 = CO2 + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

57. CHN + M = CN + H + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	3	16.5	-0.5	0.			C	ORDER MAGNITUDE EST

58. CHN + CHO = CH2O + CN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	2	11.08	0.7	3.			C	JOHNSTON-PARR CALC

59. CHN + CH2 = CH3 + CN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	2	10.95	0.7	3.			C	JOHNSTON-PARR CALC

60. CHN + CH2O = CH3O + CN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

61. CHN + CH3 = CH4 + CN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B69 1971	R	2	11.65 (0.01)			300	GAS PHASE RADIOLYSIS C2N2/AR MIX	X	
B78 1968	R	2	11.8			687	CAPACITY FLOW REACT.	X	UPPER LIMIT
T1 1967	R	2	11.46	0.7	5.			C	JOHNSTON-PARR CALC

62. CHN + CO = CHO + CN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	2	11.28	0.5	0.			C	ORDER MAGNITUDE EST

63. CHN + H = CH2 + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

64. CHN + H = CN + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
H8 1967	F	2	11.32	0.69	18.4	1000-4000		C	JOHNSTON-PARR CALC
T1 1967	F	2	11.42	0.7	18.			C	JOHNSTON-PARR CALC
H2 1967	R	2	11.66			498		R	SURVEY E APPROX ZERO
H28 1966	R	2	11.96	0.56	6.4			C	JOHNSTON-PARR CALC
T1 1967	R	2	11.0	0.5	6.			C	ORDER MAGNITUDE EST

65. CHN + HN = CH2 + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

66. CHN + HNO = CH2 + N2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

67. CHN + HNO = CH2O + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

68. CHN + HO = CHO + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

69. CHN + HO = CH2 + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

70. CHN + HO = CH2O + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

71. CHN + HO = CN + H2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.30	0.6	5.			C	JOHNSTON-PARR CALC

72. CHN + HO2 = CHO + HNO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

73. CH4 + HO2 → CH2 + NO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

74. CHN + HO2 → CH2O + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

75. CHN + H2 → CH2 + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

76. CHN + H2 → CH3 + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

77. CHN + H2O → CH2 + HNO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

78. CHN + H2O → CH2O + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

79. CHN + H2O → CH3 + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

80. CHN + H2O → CH3O + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

81. CHN + N → CN + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
M28 1966	R	2	12.41	0.55	1.5			C	JOHNSTON-PARR CALC
TI 1967	R	2	11.0	0.5	2.			C	ORDER MAGNITUDE EST

82. CHN + NO → CHO + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

83. CHN + NO → CN + HNO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
TI 1967	R	2	11.58	0.5	0.			C	ORDER MAGNITUDE EST

84. CHN + NO2 → CHO + N2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

85. CHN + O + CHO + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
NO DATA ON THIS RX IN DATA BANK AT THIS TIME									

86. CHN + O + CN + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
M8 1967	F	2	11.15	0.68	18.9	1000-4000		C	JOHNSTON-PARR CALC
T1 1967	F	2	11.45	0.7	17.			C	JOHNSTON-PARR CALC
M28 1966	R	2	11.57	0.54	3.0			C	JOHNSTON-PARR CALC
T1 1967	R	2	11.0	0.5	6.			C	ORDER MAGNITUDE EST

87. CHN + O + CO + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
NO DATA ON THIS RX IN DATA BANK AT THIS TIME									

88. CHN + O2 + CHO + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
NO DATA ON THIS RX IN DATA BANK AT THIS TIME									

90. CHN + O2 = CO + HNO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

91. CHN + O2 = CO2 + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

92. CH3 + M + CO + H + M

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
A65 1970	F	2	12.30	0.5	28.6	1700-2500	SHOCK OXID METHANE CO2,CO,H2O-IR EMISS DENSITY GRADIENT	X	SLIGHT SENSITIVITY TO THIS REACTION
B89 1970	F	1	13.7	0.	19.0			R	EVALUATION NO RELIABLE DATA EST FROM REVERSE
T1 1967	F	2	15.0	0.5	23.			R	SELECTED TERTIARY REFERENCE
A21 1972	R	3	13.46 (0.02)			300	STATIC REACTOR HG PHOTOSENS DISSN H (H) BY LYMAN ALPHA	X	M = H2 ROOM TEMPERATURE DISCUSS ENERGY TRANS
	R	3	13.40 (0.02)			300		X	M = XR
	R	3	13.35 (0.05)			300		X	M = HE
	R	3	13.34 (0.05)			300		X	M = AR
	R	3	13.24 (0.04)			300		X	M = NE
B77 1972	R	3	14.36			773	SECOND LIM CO/H2/O2 STATIC REACTOR BORIC ACID COATED	X	
B89 1970	R	2	13.8	0.	1.0			R	ESTIMATE
J1 1967	R	3	19.0 (1.5)	-1.0	0.	1000-3500		C	ESTIMATED BY ANALOGY WITH H+OH+M=H2O+M AND CO+O+M=CO2+M

93. CHO + CHO + CH2 + CO2

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

94. CH3 + CH3 + CH2O + CO

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.15	0.5	0.			C	ORDER MAGNITUDE EST

95. $CH_3 + CH_2 \rightarrow CH_3 + CO$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	10.5	0.7	1.			C	JOHNSTON-PARR CALC

96. $CHO + CH_2O \rightarrow CH_3 + CO_2$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

97. $CHO + CH_2O \rightarrow CH_3O + CO$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

98. $CHO + CH_3 \rightarrow CH_2 + CH_2O$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.18	0.7	4.			C	JOHNSTON-PARR CALC
T1 1967	R	2	10.5	0.5	6.			C	ESTIMATED BY ANALOGY

99. CH3 + CH3 = CH4 + CO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.48	0.5	0.			C	ORDER MAGNITUDE EST

100. CHO + CH3O = CH2O + CH2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

101. CHO + CH3O = CH4 + CO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

102. CHO + CH4 = CH2 + CH3O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

103. CHO + CH4 = CH2O + CH3

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.93	0.6	9.			C	JOHNSTON-PARR CALC
T1 1967	R	2	10.0	0.5	6.			R	SELECTED TERTIARY REFERENCE

104. CHO + H = CH2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	2	11.7	0.5	4.			C	ORDER MAGNITUDE EST

105. CHO + H + M = CH2O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	1	17.5	0.	87.			C	ESTIMATED (REF B17)

106. CHJ + H = CO + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
J1 1967	F	2	12.8 (2.0)	0.	0.	1000-3500		E	ESTIMATED BY ANALOGY
T1 1967	F	2	12.18	0.5	0.			C	ORDER MAGNITUDE EST

107. CHO + HN = CH2 + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

108. CHO + HN = CH2O + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

109. CHO + HN = CN + H2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

110. CHO + HNO = CH2 + NO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

111. CHO + HNO = CH2O + NO

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.51	0.5	0.			C	ORDER MAGNITUDE EST

112. CHO + HO = CH2 + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

113. CHO + HO = CH2O + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
D22 1971	R	2	13.78	0.	0.	1750-2575	INCIDENT SHOCK CO/O2/AR TRACE CH4 (CO),(CO2) BY IR	X	BEST FIT TO EXPT ASSUME RAPID DISSN OF CHO TO CO + H
F5 1963	R	2	14.0	0.	8.			R	APPROXIMATE B IS UPPER LIMIT
G20 1974	R	2	10.98			300		R	PREFERRED VALUE EVALUATION
H33 1969	R	2	10.95			300	FLOW REACTOR MASS SPEC ANALYSIS	X	
M27 1973	R	2	10.95 (0.05)			300	DISCHARGE-FLOW SYST ESR & CHEMILUMINESC	X	
N7 1966	R	2	10.32 (0.10)			300	DISCHARGE-FLOW SYST MASS SPEC ANALYSIS	X	ACTIVATION ENERGY ESTIMATED TO BE LESS THAN 5.5 KCAL/M
P13 1973	R	2	13.			1600	CH4/O2 FLAME 40 TORR MOLEC BEAM SAMPLING	X	APPROXIMATE
T1 1967	R	2	11.60	0.6	4.			C	JOHNSTON-PARR CALC

114. CHO + HO = CO + H2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B65 1970	F	2	14.0	0.	0.	1700-2500	SHOCK OXID METHANE CO2,CO,H2O-IR EMISS DENSITY GRADIENT	X	SLIGHT SENSITIVITY TO THIS REACTION
J1 1967	F	2	12.8 (2.0)	0.	0.	1000-3500		C	ESTIMATED BY ANALOGY
T1 1967	F	2	11.04	0.5	0.			C	ORDER MAGNITUDE EST

115. CHO + HO = CO2 + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

116. CHO + HO2 = CH2O + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

117. CHO + HO2 = CO2 + H2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

118. CHO + H2 = CH2 + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

119. CHO + H2 = CH2O + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B1 1962	R	2	11.79	0.5	2.7	600-1000		R	EVALUATION
	R	2	11.68	0.5	2.665	523-673		R	EVALUATION
B2 1965	R	2	10.42 (0.10)			300	H2 DISCHARGE	X	
H2 1967	R	2	13.0	0.	3.3			R	SURVEY
K1 1956	R	2	12.6			820	CH2O PYROLYSIS	X	CALCULATES UPPER LIMIT ACTIV ENERGY 5.7 KCAL
K45 1970	R	2	13.50	0.	4.24	300-813		R	SUGGESTED
M1 1960	R	2	11.6	0.5	2.0	520-675	CH2O/D2 PHOTOLYSIS	X	RX WITH D ATOMS REL TO D+H2=HD+H
R6 1972	R	2	10.51 (0.04)			297	CH2O PHOTOLYSIS (H) BY PULSED PHOTOL	X	
T1 1967	R	2	13.0	0.	2.			R	SELECTED TERTIARY REFERENCE REF TO M1
W40 1972	R	2	13.130	0.	3.76	297-652	FAST FLOW SYSTEM H3BO3-COATED QUARTZ (H) BY ESR	X	
W40 1972	R	2	10.41 (0.02)			297		X	
	R	2	10.77 (0.02)			358		X	
	R	2	10.94 (0.01)			380		X	
	R	2	11.32 (0.00)			448		X	
	R	2	11.81 (0.02)			608		X	
	R	2	11.83 (0.06)			652		X	

120. CHO + H2 = CH3 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

121. CHO + H2 + M = CH3O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

122. CHO + H2O = CH2 + HO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

123. CH3 + H2O2 → CH2O + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
A14 1964	R	2	10.8	0.	0.	346-489	DISCHARGE FLOW SYST H2O DISCHARGE	R	BASED ON A15
B49 1965	R	2	14.50	0.	4.24	723-923	THERMAL REACTION	X	K IS THAT CALCULATED BY SCHOFIELD (S1)
F5 1963	R	2	14.54	0.	1.5			R	APPROXIMATE
F7 1965	R	2	11.38	0.	1.0	400-700		R	SELECTED (REF A8)
G20 1974	R	2	12.92 (0.1)			300		R	PREFERRED VALUE BASED ON REF M25
H2 1967	R	2	14.38	0.	1.0	398-698		R	SURVEY
K45 1970	R	2	13.77	0.	0.	770-1500		R	SUGGESTED
M30 1971	R	2	12.96			300	DISCHARE-FLOW SYSTEM MASS SPEC DETECTION	X	REPRODUCIBLE WITHIN TEN PERCENT
P13 1973	R	2	13.40			1600	CH4/O2 FLAME 40 TORR MOLEC BEAM SAMPLING	X	APPROXIMATE ACTIVATION ENERGY NEAR 1 KCAL/MOLE
T1 1967	R	2	10.7	0.7	1.			C	JOHNSTON-PARR CALC
W2 1965	R	2	15.7	0.	13.0	346-1612	LOW PRESSURE FLAME MICROPROBE-MASS SPEC ESR	X	COMBINED FLAME STUDY WITH LOW TEMP STUDY PRELIMINARY ESTIMATE
W31 1972	R	2	15.7 (1.0)	0.	12.9	700-1600		R	RECOMMENDED

124. CHO + H2O → CH3 + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

125. CHO + H2O → CH3O + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

126. CH3 + N → CN + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

127. CH3 + N → CO + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.3	0.5	2.			C	ORDER MAGNITUDE EST

128. CH3 + NO → CN + H2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

129. CH3 + NO → CO + HNO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.3	0.5	2.			C	ORDER MAGNITUDE EST

130. CHO + NO → CO2 + HN

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

131. CHO + NO2 → CO2 + HNO

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

132. CHO + N2 → CN + HNO

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

133. CHO + O → CO + HO

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
J1 1967	F	2	12.8 (1.5)	0.	0.	1000-3500		C	ESTIMATED BY ANALOGY
F1 1967	F	2	11.26	0.5	0.			C	ORDER MAGNITUDE EST
W41 1972	F	2				298	FAST FLOW SYSTEM (O) BY ESR (CO2) BY MASS SPEC	X	K(CHO+O→CO2+H)/ K(CHO+O→CO+HO) =0.73 (0.15)

134. CHO + O → CO2 + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
W41 1972	F	2				298	FAST FLOW SYSTEM (O) BY ESR (CO2) BY MASS SPEC	X	K(CHO+O→CO2+H)/ K(CHO+O→CO+HO) = 0.73 (0.15)

135. CHO + O2 → CO + HO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

136. CHO + O2 → CO2 + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

137. CH2 + CH2O → CH4 + CO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

138. CH2 + CH3O = CH2O + CH3

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

139. CH2 + CH4 = CH3 + CH3

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	12.083	0.7	20.			C	ESTIMATED BY ANALOGY +JOHNSTON-PARR CALC

140. CH2 + CO2 = CH2O + CO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

141. CH2 + 1 + M = CH3 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

142. $CH2 + HN \rightarrow CH3 + N$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

143. $CH2 + HNO \rightarrow CH2O + HN$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

144. $CH2 + HNO \rightarrow CH3 + NO$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.63	0.5	0.			C	ORDER MAGNITUDE EST

145. $CH2 + HNO \rightarrow CH3O + N$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

146. $CH_2 + HO \rightarrow CH_2O + H$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

147. $CH_2 + HO \rightarrow CH_3 + O$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.7	0.5	6.			C	ORDER MAGNITUDE EST
T1 1967	R	2	11.0	0.5	17.			C	ORDER MAGNITUDE EST

148. $CH_2 + HO + M \rightarrow CH_3O + M$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

149. $CH_2 + HO_2 \rightarrow CH_2O + HO$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

150. CH2 + HO2 = CH3 + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

151. CH2 + HO2 = CH3O + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

152. CH2 + H2 = CH3 + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	10.0	0.5	10.			C	ESTIMATED BY ANALOGY
T1 1967	R	2	11.26	0.7	3.			C	JOHNSTON-PARR CALC

153. CH2 + H2 + M = CH4 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

154. CH2 + H2O = CH2O + H2

REF	DIR	ORD	A	N	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

155. CH2 + H2O = CH3 + HO

REF	DIR	ORD	A	N	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	10.0	0.5	10.			C	ORDER MAGNITUDE EST
T1 1967	R	2	10.8	0.7	2.			C	JOHNSTON-PARR CALC

156. CH2 + H2O = CH3O + H

REF	DIR	ORD	A	N	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

157. CH2 + H2O = CH4 + O

REF	DIR	ORD	A	N	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

158. $CH_2 + N \rightarrow CN + H_2$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

159. $CH_2 + NO \rightarrow CH_2O + N$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

160. $CH_2 + NO \rightarrow CN + H_2O$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

161. $CH_2 + NO_2 \rightarrow CH_2O + NO$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

162. $CH_2 + N_2O \rightarrow CH_2O + N_2$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

163. $CH_2 + O + M \rightarrow CH_2O + M$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

164. $CH_2 + O \rightarrow CO + H_2$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

165. $CH_2 + O_2 \rightarrow CH_2O + O$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
TI 1967	F	2	11.7	0.5	7.			E	ORDER MAGNITUDE EST

166. CH2 + O2 = CO + H2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

167. CH2 + O2 = CO2 + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

168. CH2O + M = CO + H2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

169. CH2O + CH2O = CH4 + CO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

170. $CH_2O + CH_4 \rightarrow CH_3 + CH_3O$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

171. $CH_2O + H \rightarrow CH_3 + O$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
D22 1971	R	2	13.78	0.	0.	1750-2975	INCIDENT SHOCK CO/O2/AR TRACE CH4 (CO),(CO2) BY IR	X	BEST FIT TO EXPT
F5 1963	R	2	14.0	0.	0.		CH4/O2 FLAME	R	APPROXIMATE
F8 1961	R	2	13.28 (0.06)	0.	0.	1200-1900	CH4/O2 FLAME	X	VALUE APPROXIMATE BASED ON CALCD CH3 PROD. MAY BE CH2+HO
H2 1967	R	2	12.28	0.	0.			R	SURVEY
M25 1973	R	2	13.7			300	DISCHARGE-FLOW SYST MASS SPEC ANALYSIS	X	UNCERTAINTIES-MIXING VERIFIES LOWER LIMIT FROM REF N1
N1 1968	R	2	13.26			300	DISCHARGE-FLOW SYST MASS SPEC ANALYSIS	X	LOWER LIMIT ALSO IN REF N4
P13 1973	R	2	14.11	0.	2.	1100-1800	CH4/O2 FLAME 40 TORR MOLEC BEAM SAMPLING	X	FOLLOWED CH3 RELATIVE TO RATES OF CH4+HO AND CH4+O
S38 1974	R	2	14.05 (0.06)			300	FAST FLOW REACTOR PHOTOIONIZ MASS SPEC	X	0.7 - 2.2 TORR
T1 1967	R	2	13.28	0.	0.			R	SELECTED (REF F8)

172. $CH_2O + H + M \rightarrow CH_3O + M$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

173. CH2O + HN = CH3 + NO

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

174. CH2O + HN = CH3O + N

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

175. CH2O + HNO = CH3 + NO2

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

176. CH2O + HNO = CH3O + NO

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

177. CH2O + HO • CH3 + O2

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
B45 1964	R	2	8.72			771	THERMAL REACTION CH3COCH3/O2	K	RATE IS THAT QUOTED IN REF T3
B64 1970	R	2	7.96			773	STATIC RE[illegible] CH4/H2/O[illegible]	K	BASED ON CH3+H2=CH4+H
B76 1968	R	2	8.15			773	STATIC R[illegible] BORIC AC[illegible] CH4/H2/O[illegible] IA	K	BASED ON CH3+H2=CH4+H
D22 1971	R	2	13.48	0.	10.0	1750-2575	INCIDENT SHOCK CO/O2/AR TRACE CH4 (CO),(CO2) BY IR	K	BEST FIT TO EXPT
F5 1963	R	2	14.0	0.	1.5			R	APPROXIMATE
H2 1967	R	2	11.0	0.	0.	298-1273		R	SURVEY VALUE APPROXIMATE

178. CH2O + HO • CH3O + O

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

179. CH2O + HO2 • CH3O + O2

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

180. CH2O + H2 • CH3 + HO

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

181. CH2O + H2 = CH3O + H

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

182. CH2O + H2 = CH4 + O

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

183. CH2O + H2O = CH3 + HO2

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

184. CH2O + H2O = CH3O + HO

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

185. $CH_2O + H_2O \rightarrow CH_4 + O_2$

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS Rx
IN DATA BANK
AT THIS TIME

186. $CH_2O + N \rightarrow CN + H_2O$

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS Rx
IN DATA BANK
AT THIS TIME

187. $CH_2O + O \rightarrow CO + H_2O$

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS Rx
IN DATA BANK
AT THIS TIME

188. $CH_2O + O \rightarrow CO_2 + H_2$

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS Rx
IN DATA BANK
AT THIS TIME

189. CH2O + O2 + CO2 + H2O

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

190. CH3 + CO2 + CH3O + CO

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

191. CH3 + H + M + CH4 + M

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
D18 1969	F	2	13.01 (0.11)			293	MASS SPEC ZONING OF DIFFUSION CLOUD CH3 FROM H+C2H6+C3H8	X	DILUTE IN HELIUM
S2 1965	F	3	22.079	-1.0	0.			R	SELECTED THIRD BODY M = AR
	F	3	22.380	-1.0	0.			R	SELECTED THIRD BODY M = H2
S33 1972	F	3	15.903	0.	-14.10	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	F	2	11.7	0.5	0.			C	ORDER MAGNITUDE EST
M65 1970	R	2	16.00	0.	88.4	1700-2500	SHOCK OXID METHANE CO2,CO,H2O-IR EMISS DENSITY GRADIENT	X	SECOND ORDER DECOMP M = ANY
D22 1971	R	2	16.21	0.	103.	1750-2575	INCIDENT SHOCK CO/O2/AR TRACE CH4 (CO),(CO2) BY IR	X	M = ANY BEST FIT TO EXPT
M32 1971	R	2	17.3	0.	98. (2.)	1850-2500	REFLECTED SHOCK CH4/AR MIX IR EMISS, UV ABSORPT	X	LOW PRESSURE LIMIT M = AR
	R	1	19.1	0.	104. (2.)	1850-2500		X	HIGH PRESSURE LIMIT
S2 1965	R	2	27.745	-2.0	105.3			R	SELECTED THIRD BODY M = AR
	R	2	28.041	-2.0	105.3			R	SELECTED THIRD BODY M = H2
S27 1959	R	1	14.71	0.	101.0	1200-1800	SHOCK TUBE STUDY CH4/AR MIX	X	HIGH PRESSURE LIMIT
S33 1972	R	2	17.403	0.	88.00	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS

192. $CH_3 + HN \rightarrow CH_4 + N$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

193. $CH_3 + HNO \rightarrow CH_3O + HN$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

194. $CH_3 + HNO \rightarrow CH_4 + NO$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.70	0.5	0.			C	ORDER MAGNITUDE EST

195. $CH_3 + HO \rightarrow CH_3O + H$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

196. CH3 + HO → CH4 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
M9 1968	F	2	12.0			1000		C	JOHNSTON-PARR CALC
S33 1972	F	2	11.556	0.	4.870	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
A1 1964	R	2	13.75 (0.15)	0.	8.7 (0.8)	843-933	FIRST IGN. LIMIT C H4/O2/H2 MIXTURES	X	
C22 1965	R	2	12.86	0.	7.3 (1.5)	295-533	DISCHARGE FLOW SYST GAS CHROM, MASS SPEC	X	NITROGEN CARRIER. HIGHER RATE FOUND WITH OXYGEN CARRIER
D22 1971	R	2	14.19	0.	7.95	1750-2575	INCIDENT SHOCK CO/O2/AR TRACE CH4 (CO),(CO2) BY IR	X	BEST FIT TO EXPT
M25 1969	R	2	13.32 (0.18)	0.	9.04	350-2000		R	CRITICAL EVALUATION
	R	2	11.34 (0.18)			1000		R	
	R	2	7.0 (0.3)			298		R	
K45 1970	R	2	13.70 (0.16)	0.	8.99 (0.38)	295-1800		R	SUGGESTED
M9 1968	R	2	7.3			300		C	JOHNSTON-PARR CALC
S1 1967	R	2	13.50	0.	7.95	295-1000		R	RECOMMENDED VALUE LEAST SQUARES FIT
S25 1969	R	2	13.23 (0.03)	0.	8.7 (0.7)	299-895		R	RECOMMENDED (REF W8)
S33 1972	R	2	13.322	0.	4.550	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	R	2	11.6	0.5	8.			R	SELECTED REF PRIV COMM
W8 1967	R	2	13.23 (0.05)	0.	8.7	400-895	DISCHARGE FLOW SYST O FROM N + NO ESR ATOM DETECTION	X	SUPERSEDED BY W25
	R	2	7.38 (0.02)			299		X	
	R	2	8.11			349		X	
	R	2	8.56 (0.03)			405		X	
	R	2	9.15 (0.03)			485		X	
	R	2	9.98 (0.04)			573		X	
	R	2	10.45 (0.04)			700		X	
	R	2	11.23 (0.02)			895		X	
W15 1963	R	2	13.3 (0.2)	0.	6.9 (1.5)	350-600	DISCH. STIRRED REACT MASS SPECTROMETER	X	
W25 1969	R	2	7.100 (0.007)			297	DISCHARGE-FLOW SYST ESR DETECTION	X	SUPESEDES REF W8
	R	2	7.98 (0.01)			363		X	
	R	2	8.53 (0.01)			419		X	
	R	2	9.40 (0.02)			516		X	

196. CH3 + HO = CH4 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
	R	2	10.037 (0.01)			605		X	
	R	2	[illegible]114 ([illegible].016)			904		X	
W25 1969	R	2	13.30	0.	9.2	400-900	DISCHARGE-FLOW SYST ESR DETECTION	X	SUPERSEDES REF W8
W27 1967	R	2	14.0	0.	10.0	375-576	STIRRED REACTOR MASS SPEC ANAL	X	RATE OF CH4 DISAPP DUE TO O ATOM

197. CH3 + HO2 = CH3O + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

198. CH3 + HO2 = CH4 + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
S33 1972	F	2	12.000	0.	0.400	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	F	2	11.0	0.5	6.			C	ORDER MAGNITUDE EST
S33 1972	R	2	13.903	0.	56.00	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS

199. CH3 + H2 = CH4 + H

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
B10 1959	F	2	11.5	0.	10.0	750-820	PYROLYSIS CH3OCH3	X	
P1 1955	F	2	11.5	0.	10.0			R	SELECTED
S2 1965	F	2	12.500	0.	10.20	975-1300	H2/O2 IGNITION	X	ADJUSTED LIT RATES FOR BEST FIT TO INDUCTION TIMES
S33 1972	F	2	12.097	0.	14.20	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	F	2	10.0	0.5	10.			R	SELECTED TERTIARY REFERENCE
W30 1968	F	2	12.52 (0.06)	0.	12.2 (0.8)	300-700		R	CRITICAL EVALUATION
A1 1964	R	2	10.47			883	FIRST IGN. LIMIT C H4/O2/H2 MIXTURES	X	
B3 1954	R	2	10.01 (0.15)	0.	4.5 (1.2)	372-436	H2/TUNGSTEN FILAMENT	X	
B10 1959	R	2	12.6	0.	8.0	750-820		R	EST FROM REVERSE
B64 1970	R	2	10.76			773	STATIC REACTOR CH4/H2/O2/N2 MIX	X	BASED ON K(H+O2=OH+O)
B64 1970	R	2	14.100	0.	11.9	298-2000		R	COMBINED OWN RESULTS WITH THOSE OF OTHERS
D13 1966	R	2	10.6 (0.2)			900	ATM PRESSURE FLAME MICROPROBE-MASS SPEC	X	
D10 1966	R	2	13.8 (0.3)	0.	12.6 (1.0)	372-1790		R	BASED ON XPTL DATA
F1 1961	R	2	14.3	0.	11.5 (1.5)	1225-1800	CH4/O2 FLAME MICROPROBE-MASS SPEC	X	
F5 1963	R	2	14.40	0.	11.5			R	SUGGESTED
F7 1965	R	2	14.70	0.	13.5	373-2000		R	EVALUATION
H2 1967	R	2	14.18	0.	14.			R	SURVEY
I1 1964	R	2	14.19	0.	11.05			R	SELECTED
J2 1964	R	2	11.8	0.	7.4 (1.1)	485-803	H2 DISCHARGE-FLOW GAS CHROMATOGRAPH	X	ANALYZED FOR LAMINAR+TURB FLOW USED AVERAGE
K34 1970	R	2	8.230 (0.057)			424	DISCHARGE-FLOW SYST ESR ATOM DETECTION	X	
	R	2	8.134 (0.094)			431		X	
	R	2	8.932 (0.007)			492		X	
	R	2	8.772 (0.017)			500		X	
	R	2	9.560 (0.029)			588		X	
	R	2	10.049 (0.023)			680		X	
	R	2	10.356 (0.038)			732		X	
K34 1970	R	2	13.796 (0.121)	0.	11.6 (0.15)	424-732	DISCHARGE-FLOW SYST ESR ATOM DETECTION	X	

199. CH3 + H2 = CH4 + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
K42 1969	R	2	7.785 (0.109)			426	DISCHARGE-FLOW SYST ESR ATOM DETECTION	X	
	R	2	8.588 (0.036)			505		X	
	R	2	9.393 (0.016)			589		X	
	R	2	9.881			647		X	
	R	2	10.107 (0.030)			682		X	
	R	2	10.061 (0.029)			689		X	
	R	2	10.398 (0.014)			747		X	
	R	2	10.398 (0.017)			752		X	
K42 1969	R	2	13.84 (0.04)	0.	11.8 (0.2)	426-747	DISCHARGE-FLOW SYST ESR ATOM DETECTION	X	
K45 1970	R	2	13.71 (0.35)	0.	12.90 (1.14)	500-2000		R	SUGGESTED
L1 1953	R	2	10.5	0.	6.6	372-436	H2/TUNGSTEN FILAMENT	X	
P1 1955	R	2	12.5	0.	9.0	403-693		R	FROM REVERSE
P13 1973	R	2	12.51 (0.07)			1600	CH4/O2 FLAME 40 TORR MOLEC BEAM SAMPLING	X	FOLLOWED CH4 DISAPP IN STOICHIONET FLAME
S1 1967	R	2	13.61	0.	11.61	400-2000		R	RECOMMENDED VALUE LEAST SQUARES FIT CORRECTED VALUE
S2 1965	R	2	13.900	0.	8.000	975-1130	H2/O2 IGNITION	X	ADJUSTED LIT RATES FOR BEST FIT TO INDUCTION TIMES
S33 1972	R	2	13.498	0.	11.90	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	R	2	11.64	0.7	7.			C	JOHNSTON-PARR CALC
W30 1968	R	2	14.100 (0.079)	0.	11.9 (0.4)	350-1800		R	CRITICAL EVALUATION

200. CH3 + H2O = CH3O + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

201. CH3 + H2O = CH4 + HO

REF	DIM	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
I1 1964	F	2	13.57	0.	24.7			R	SELECTED
K45 1970	F	2	13.10	0.	22.56	1000-2000		R	SUGGESTED
S33 1972	F	2	12.568	0.	22.00	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
W1 1968	F	2	12.68	0.	22.1 (0.6)	300-2000		R	FROM REVERSE
A14 1964	R	2	14.38	0.	8.3		H2O DISCHARGE	R	BASED ON EXPT
B64 1970	R	2	11.93			773	STATIC REACTOR CH4/H2/O2/N2 MIX	X	BASED ON K(H2+OH=H2O+H)M)
B64 1970	R	2	13.32 (0.15)	0.	4.86 (0.25)	298-2000		R	COMBINED OWN RESULTS WITH THOSE OF OTHERS
D10 1966	R	2	12.5 (0.2)			1285	ATM PRESSURE FLAME MICROPROBE-MASS SPEC	X	
D10 1966	R	2	13.4 (0.2)	0.	5.1 (0.4)	300-1790		R	BASED ON XPTL DATA
D25 1970	R	2	13.41	0.	5.0	300-3000		R	EVALUATION
F1 1961	R	2	14.54	0.	9.0 (1.5)	1225-1800	CH4/O2 FLAME MICROPROBE-MASS SPEC	X	
F5 1963	R	2	14.15	0.	6.5	1203-1803	CH4/O2 FLAME MICROPROBE-MASS SPEC	X	
F7 1965	R	2	14.70	0.	9.9	400-1800		R	EVALUATION
G7 1967	R	2	9.72 (0.02)			301	FLASH PHOTOLYSIS H2O/CH4 MIX	X	
G16 1968	R	2	9.72 (0.02)			300	FLASH PHOTOLYSIS KINETIC SPECTROSCOPY	X	
G18 1970	R	2	12.52 (0.06)	0.	3.772 (0.102)	300-500	FLASH PHOTOLYSIS KINETIC SPECTROSCOPY	X	
G20 1974	R	2	12.250 (0.04)	0.	3.52	240-370		R	PREFERRED VALUE EVALUATION
H2 1967	R	2	14.70	0.	9.9			R	SURVEY
I1 1964	R	2	14.36	0.	7.9			R	SELECTED
K45 1970	R	2	13.90 (0.14)	0.	5.78 (0.38)	300-1800		R	SUGGESTED
P13 1973	R	2	13.5	0.	0.	1100-1900	CH4/O2 FLAME 40 TORR MOLEC BEAM SAMPLING	X	FOLLOWED CH4 DISAPP ALLOWED FOR CH4+O
S1 1967	R	2	13.88	0.	5.91	300-1850		R	RECOMMENDED VALUES LEAST SQUARE FIT
S15 1969	R	2	9.164			300	DISCHARGE-FLOW SYST MASS SPEC ANALYSIS	X	
S33 1972	R	2	13.322	0.	4.860	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	R	2	14.54	0.	9.			R	SELECTED (REF F8)
W1 1968	R	2	13.45 (0.7)	0.	5.0	300-2000		R	EVALUATION
W14 1961	R	2	13.3			1650+1840	CH4/O2 FLAME MICROPROBE-MASS SPEC	X	

201. CH3 + H2O = CH4 + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
W20 1967	R	2	9.81 (0.09)			300	DISCHARGE FLOW SYST ESR FOR (OH)	X	
W20 1967	R	2	13.46 (0.09)	0.	5.0	300-2000		R	FITTED OWN LOW TEMP RESULT W/ HIGH TEMP RESULTS OF OTHERS
W31 1972	R	2	13.455 (0.7)	0.	5.0	300-2000		R	EVALUATION BASED ON CO+OH=CO2+H

202. $CH_3 + NO \rightarrow CH_3O + N$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

203. $CH_3 + NO_2 \rightarrow CH_3O + NO$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

204. $CH_3 + N_2O \rightarrow CH_3O + N_2$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
F30 1973	F	2	7.15 (0.08)			873	STATIC REACTOR CH4/N2O MIX GC ANALYSIS	K	BASED ON ASSUMED MECHANISM

205. $CH_3 + O + M \rightarrow CH_3O + M$

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

206. CH3 • O2 = CH3O • O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

207. CH3O • M = CH4 • O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

208. CH3O • MN = CH4 • NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

209. CH3O • MNO = CH4 • NO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

210. CH3O + HO → CH4 + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

211. CH3O + H2 → CH4 + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

212. CH3O + H2O → CH4 + HO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

213. CN + HO → CO + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

214. CN + HO2 → CO + HNO

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

215. CN + HO2 → CO2 + HN

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

216. CN + NO → CO + N2

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
B78 1968	F	2	11.5			687	CAPACITY FLOW REACT.	R	
M2 1967	F	2	13.08			498		R	SURVEY E APPROX ZERO
M19 1966	R	2	3.0 (2.0)	2.0	102.8			C	TRANS. STATE THEORY ACT ENERGY RELATED TO HEAT RX+DISSN EN

217. CN + NO2 → CO + N2O

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

218. CN + NO2 = CO2 + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

219. CN + O = CO + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

220. CN + O2 = CO + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B86 1965	F	2	11.84			298	FLASH PHOTOLYSIS (CN) PHOTOMETRICALLY	X	ROOM TEMPERATURE RATE UPPER LIMIT
H2 1967	F	2	11.84			498		R	SURVEY UPPER LIMIT

221. CN + O2 = CO2 + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

222. CO + HNO = CO2 + HN

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.0	0.5	7.			C	ORDER MAGNITUDE EST

223. CO + HO + CO2 + H

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
A11 1967	F	2	10.82	0.5	5.0	348-520	FLOW DISCHARGE OH BY SPECTROSCOPY	R	
A14 1964	F	2	13.08	0.	7.0	378-489	FLOW DISCHARGE OH BY SPECTROSCOPY	R	BASED ON A9
B4 1968	F	2	11.49	0.	0.60			R	SELECTED (REF D5)
B5 1968	F	2	11.75 (0.06)	0.	1.08 (0.50)			R	EVALUATION
B16 1968	F	2	11.57	0.	0.7	1400-3000		R	
B71 1970	F	2	12.00 (0.28)	0.	3.7 (1.9)	1300-1900	SHOCK TUBE STUDY H2/CO/CO2/O2/AR MIX (O) BY CO+O EMISSION	R	
B80 1971	F	2	12.00 (0.28)	0.	3.7 (1.9)	1300-1900	SHOCK TUBE STUDY H2/CO/CO2/O2/AR MIX CO FLAME BAND EMISS	R	
	F	2	11.364			1297		R	
	F	2	11.316			1342		R	
	F	2	11.539			1369		R	
	F	2	11.356			1372		R	
	F	2	11.326			1445		R	
	F	2	11.549			1521		R	
	F	2	11.430			1535		R	
	F	2	11.762			1626		R	
	F	2	11.568			1777		R	
	F	2	11.613			1843		R	
	F	2	11.572			1898		R	
	F	2	11.382			1899		R	
B82 1971	F	2	11.62 (0.29)	0.	1.0 (0.2)	300-1900		R	COMBINED OHN RESULTS WITH THOSE OF (G10)
B83 1969	F	2	11.571	0.	0.7	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	R	BEST FIT TO EXPT
B98 1974	F	2	7.18	1.0	-0.765	298-2000		R	CRITICAL EVALUATION ALT EXP 298-2500K LOG K=10.03+.0003961
C1 1967	F	2	11.49 (0.70)	0.	0.60			R	SELECTED
D5 1965	F	2	11.061 (0.016)			300	DISCHARGE FLOW SYST OH FROM H + NO2 (OH) BY ESR	R	
D9 1966	F	2	11.49	0.	0.6	300-1950		R	COMBINED OHN RESULTS WITH HIGH T RESULTS
D11 1965	F	2	11.5 (0.3)	0.	0.5 (0.5)	300-1950	H2-O2-CO2 FLAME	R	
D70 1972	F	2	12.06	0.	1.33	1700-3600	INCIDENT SHOCK CO/O2/AR TRACE H2 I(CO),I(CO2) BY IR	R	

			223. CO + HO				+ CO2 + H		
REF	DIA	CMD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
D23 1971	F	2				300-3000		R	REC K=CO(T)EXP(E/RT) USE E = 0 LOG K(300) = 10.93
D25 1970	F	2	11.75	0.	1.08	300-3000		R	EVALUATION
D29 1973	F	2	11.38 (0.02)			1050	H2/O2/N2 FLAMES CO ADDED	X	BASED ON CO/N2
F7 1965	F	2	12.85	0.	7.7	380-1950		R	EVALUATION
F22 1963	F	2	12.7	0.	0.6	1200-1350	C2H2-O2 FLAME	X	RELATIVE TO H2 + OH BASED ON F19
G7 1967	F	2	10.95 (0.04)			301	FLASH PHOTOLYSIS H2O/CO MIX	X	
G10 1969	F	2	10.911 (0.022)			300	FLASH PHOTOLYSIS KINETIC SPECTROSCOPY	X	
	F	2	10.946 (0.026)			300		X	
	F	2	10.946 (0.019)			300		X	
	F	2	10.924 (0.019)			305		X	
	F	2	10.991 (0.023)			334		X	
	F	2	10.946 (0.013)			373		X	
	F	2	10.926 (0.012)			421		X	
	F	2	10.999 (0.009)			495		X	
	F	2	10.996 (0.005)			495		X	
	F	2	11.000 (0.022)			495		X	
	F	2	10.994 (0.021)			498		X	
G10 1969	F	2	11.10 (0.07)	0.	(0.23 (0.14)	300-500	FLASH PHOTOLYSIS KINETIC SPECTROSCOPY	X	
G20 1974	F	2	10.93 (0.1)	0.	0.	200-400		R	PREFERRED VALUE EVALUATION
G22 1973	F	2	12.60 (0.10)	0.	0.	1200-2500	SHOCK-INIT COMBUST. H2/O2/CO/CO2/AR MIX	X	DISCUSS POSSIBLE NONLINEAR ARRHENIUS
H2 1967	F	2	12.85	0.	7.7			R	SURVEY
H7 1966	F	2	10.71 (0.14)			300	DISCHARGE FLOW SYST OH FROM H + NO2 MASS SPEC	X	
H7 1966	F	2	11.96	0.	.7	300-1950		R	FITTED OWN LOW TEMP RESULT AND HIGH TEMP RESULTS OF OTHERS
H11 1967	F	2	12.11			2200	METHANE-HCLO4 FLAME	X	ESTIMATE
H12 1965	F	2	11.226 (0.12)			1400	WELL-STIRRED REACTOR	X	
I1 1964	F	2	12.46	0.	5.7			R	SELECTED
J1 1967	F	2	11.3 (0.7)	0.	0.6	1000-1000		R	EVALUATION

223. CO + HO + CO2 + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
J5 1965	F	2	12.0	0.	+.0	1380-1720	HYDROCARBON FLAME	X	ASSUME ENTHALPY(OH) 10. KCAL/MOLE
K3 1964	F	2	12.51	0.	6.3			R	EVALUATION
K5 1959	F	2	12.46	0.	5.7			R	REVIEW OF RADICAL REACTIONS IN FLAMES
K35 1969	F	2	11.777	0.	1.22	1023-1523	FLOW REACTOR (CO), (H2O) GRAVIMET	X	
K38 1968	F	2	11.51	0.	0.6 (0.3)			R	RECOMMENDED (REF D5)
K41 1969	F	2	11.73	0.	1.0			R	SUGGESTED LARGE SPREAD IN DATA
K45 1970	F	2	11.59 (0.07)	0.	0.81 (0.13)	300-1720		R	SUGGESTED
M11 1965	F	2	12.51	0.	6.3	1500-3300	CO OXIDATION SHOCKED CO-O2-AR MIX	X	SELECTED (REF K3)
P6 1966	F	2	11.28			1600	HYDROCARBON FLAMES C2H2-O2-N2 MIX	X	
P13 1973	F	2	12.13 (0.07)	0.	5.5	1600-1900	CH4/O2 FLAME 40 TORR MOLEC BEAM SAMPLING	X	BASED ON MEASURED K AND EFFECTIVE ACTIV. ENERGY OF REF D23
S1 1967	F	2	11.82	0.	1.03	300-2000		R	RECOMMENDED VALUE LEAST SQUARES FIT
S26 1971	F	2	12.14	0.	1.08	1470-1785	FLAT FLAME STUDY MASS SPEC ANALYSIS UV FOR (OH) AND TEMP	X	COMPARE REC OF (B5) RESULT HIGHER BY FACTOR OF 2.47
S32 1972	F	2	10.91 (0.06)			298	PULSED VACUUM PHOTOL OF H2O FOR OH (OH) BY RES FLUORESC	X	
S33 1972	F	2	11.748	0.	1.08	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	F	2	11.5	0.	0.6			R	SELECTED
W1 1968	F	2	11.40 (0.7)	0.	0.6	300-2000		R	EVALUATION
W2 1969	F	2	12.85	0.	7.7	400-2000		R	CRITICAL SURVEY
W11 1967	F	2	10.95 (0.1)			300	FLOW SYSTEM OH FROM H+NO2 MASS SPEC	X	OH + NO2 CONSIDERED A FROM 10.95-11.06
W14 1961	F	2	12.0			1950	CH4-O2 FLAME	X	
W31 1972	F	2	11.49 (0.3)	0.	0.6	300-2000		R	EVALUATION
W32 1973	F	2	10.90			298	FAST FLOW REACTOR ESR DETECTOR OH BY NO2 + H	X	DATA EXHIBITS CURVATURE ON ARRHENIUS PLOT
	F	2	10.92			396		X	
	F	2	10.94			523		X	
	F	2	11.01			707		X	
	F	2	11.12			919		X	
94 1968	R	2	10.299	-0.77	25.112			R	FROM DATA OF D5 B=-0.766
95 1968	R	2	13.75 (0.10)	0.	25.5 (1.0)			R	FROM REVERSE

223. CO + HO + CO2 + H

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B83 1969	R	2	16.545	-0.80	25.142	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	FROM REVERSE
D2 1965	R	2	8.92			1072	H2/N2/O2 FLAME	X	CALCD FROM K(H+H2O)
D11 1965	R	2	8.92 (0.05)			1072	H2/N2/O2 FLAME	X	CALCD FROM K(H+D2O)
F5 1963	R	2	15.11	0.	33.			R	FROM REVERSE RXN
F21 1958	R	2	15.5	0.	33.3	1217-1345	H2/O2/CO2 FLAME (H) BY HO FROM H+O2O	X	
H2 1967	R	2	15.5	0.	33.	1273-2273		R	SURVEY
I1 1964	R	2	14.89	0.	29.7			R	SELECTED
J9 1970	R	2	14.04 (0.10)	0.	24.9 (1.3)	2000-2700	REFLECTED SHOCK (CO2) BY IR	X	
J9 1970	R	2	19.04 (0.10)	-1.33	31.3	1400-2700		R	COMBINED OWN RESULT WITH LOW TEMP RESULT
K3 1964	R	2	17.43	-0.79	30.7			R	EVALUATION
K35 1969	R	2	14.009	0.	24.20	1023-1523	FLOW REACTOR (CO), (H2O) GRAVIMET	X	
S1 1967	R	2	14.48	0.	25.709	300-900		R	FROM REVERSE
	R	2	14.01	0.	23.815	900-2000		R	FROM REVERSE
S33 1972	R	2	13.748	0.	23.50	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS

224. CO + HO2 = CO2 + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
G20 1974	F	2	4.8			300		R	UPPER LIMIT PREFERRED VALUE EVALUATION
J1 1967	F	2	12.8 (2.0)	0.	10.	1000-3500		C	ESTIMATED BY ANALOGY WITH CO+OH=CO2+H AND H2+HO2=H2O+HO
L11 1971	F	2	12.0 (1.7)	0.	16.5	300-1000		R	EVALUATION BASED ON HO2+HO2 RX A ESTIMATED
L16 1974	F	2	11.0 (0.3)	0.	10.0	300-1000		R	RECOMMENDED EVALUATION
V7 1972	F	2	8.75			298	PHOTODECOMP H2O2 H2O2/CO/O2 MIX	X	UPPER LIMIT RELATIVE TO CO + HO (MUCH SLOWER)

225. CO + H2O = CO2 + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	2	9.0	0.5	15.			C	ORDER MAGNITUDE EST

226. CO + NO = CO2 + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
M19 1966	F	2	3.0 (2.0)	2.0	41.69			C	TRANS. STATE THEORY ACT ENERGY RELATED TO HEAT RX+DISSN EN
C1 1967	R	2	11.021 (3.0)	0.5	59.6			C	SPIN FORBIDDEN USE N*, INCREASE E PREEXP ESTIMATED
M30 1968	R	2	8.0			550	DISCHARGE-FLOW MASS SPEC	X	UPPER LIMIT
T1 1967	R	2	11.3	0.5	8.			C	ORDER MAGNITUDE EST

227. CO + NO2 = CO2 + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B47 1941	F	2	11.68	0.	27.8	498-563	THERMAL RX CO/NO2	X	
J6 1957	F	2	13.08	0.	31.6	540-727	THERMAL RX CO/NO2	X	
J6 1957	F	2	0.24			540		X	
	F	2	2.06			638		X	
	F	2	3.47			727		X	
K45 1970	F	2	12.28 (0.27)	0.	29.26 (0.77)	500-800		R	SUGGESTED
T1 1967	F	2	11.3	0.5	5.			C	ORDER MAGNITUDE EST
B63 1970	R	2	12.1	0.	27.6	1050-1500	SINGLE PULSE SHOCK PROD ANAL BY CHROMAT	X	POWER DEPENDENCE ON NO2(0.77), CO(1.13), AR(0.1)
C23 1959	R	2	9.5			3000	SHOCK TUBE/MASS SPEC N0/C02/AR/NE MIX	X	UPPER LIMIT

228. CO + N2O = CO2 + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
L9 1959	F	2	11.04	0.	23.0	1317-1908	SINGLE PULSE SHOCK N2O/CO/AR MIX GC ANALYSIS	X	
M29 1973	F	2	11.32 (0.36)	0.	17.3 (2.3)	1169-1655	SINGLE PULSE SHOCK 02,N2,NO,CO,KR,CO2, N2O BY GC	X	
T1 1967	F	2	11.0	0.5	3.			C	ORDER MAGNITUDE EST

			229.	CO • O	• M	• CO2 • M		
REF	DEP	ORD	A	B	T	EXPERIMENTAL	TYP	COMMENTS
A12 1970	F	3	13.364 (0.0711		298	DISCHARGE-FLOW SYST EPR	X	M = CO
A12 1970	F	3	13.815 (0.0943		298		X	M = AR
B5 1966	F	2	10.250	0. 2.53	400-550		R	TENTATIVE RECOMMEND NOT TO BE EXTRAP TO HIGHER TEMP
B16 1966	F	3	13.6	0. 0.	1400-3000		X	M = AR VALUE APPROXIMATE
B32 1967	F	3	13.3 (0.7)	0. 0.	2600-3600	SHOCK TUBE CO2/AR MIX	X	M = AR STATE THAT VALUE IS LOWER LIMIT
B77 1972	F	3	14.08	0. 3.0	500-3500		R	M = AR CONSIDERABLE SCATTER
B83 1969	F	3	13.78	0. 0.	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	M = AR APPROXIMATE VALUE
C1 1967	F	3	10.0 (2.5)	0. 3.5			R	SELECTED
C12 1967	F	3	14.0		300	U V FLASH PHOTOL CO2	X	M = AR SINGLET O ATOM
C11 1967	F	2	12.3		300	UV PHOTOLYSIS OF CO2	X	TEMP NOT GIVEN PROBABLY ROOM TEMP SINGLET O ATOM
D21 1973	F	3	13.24		298	FLASH PHOTOLYSIS STATIC REACTOR MIN ABSORPT SPECT	X	M = HE UPPER LIMIT
H2 1967	F	2	10.0	0. 4.0	298-553		R	SURVEY
I2 1968	F	3	11.65 (0.31)	0. -2.98 (0.66)	136-230	FLOW REACTOR O FROM OZONE	X	M UNSPECIFIED
J1 1967	F	3	13.3 (1.5)	-1.0 4.	1000-3500		R	EVALUATION
K23 1961	O	2	9.98	0. 2.1	373-523	PYROLYS OF O3-CO MIX MEASURED LUMINESC	X	
K33 1969	F	3	11.65 (0.31)	0. -2.98 (0.66)	136-230	FLOW REACTOR O FROM OZONE	X	M = O2
	F	3	11.23 (0.31)	0. -2.98 (0.66)	136-230		X	M = CO
L9 1969	F	3	12.65	0. -23.6	1500-3000	SINGLE PULSE SHOCK N2O/CO/AR MIX GC ANALYSIS	X	M = AR
M12 1962	F	2	10.0	0. 4.0	300-531	STIRRED FLOW REACTOR O2 DISCHARGE	X	SUGGEST REACTION PROB SPIN FORBIDDEN
M13 1968	F	2	7.0 (0.2)		456	STIRRED FLOW REACTOR CO IN EXCESS O2 3 TORR TOTAL PRESS	X	ASSUMED ONLY BIMOLECULAR RX
S7 1973	F	3	12.34 (0.10)		300	STATIC REACTOR O BY PHOTODISSOC. O RESONANCE RAD	X	M = HE IMPURITIES REPORTED IN REF S24
	F	3	12.40 (0.18)		300		X	M = AR
	F	3	12.71 (0.11)		300		X	M = N2
S24 1972	F	3	15.37	0. 4.34 (0.55)	250-370	STATIC REACTOR O BY PHOTODISSOC. O RESONANCE RAD	X	M = CO SUPERSEDES REF S7
	F	3	12.15 (0.07)		298		X	M = CO
	F	3	11.92 (0.07)		298		X	M = N2
	F	3	12.65 (0.06)		298		X	M = CO2

REF	DIR	ORD	229. A	B	CO + O C	+ M T	+ CO2 EXPERIMENTAL	+ M TYP	COMMENTS
S33 1972	F	3	13.602	0.	0.	1300-2500	IGNETION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
S35 1972	F	3	15.77	0.	4.1	298-472	O BY PHOTODECOMP N2O STATIC QUARTZ REACT N2,CO,CO2 ANAL CHROM	X	LOW PRESSURE LIMIT M = N2O DETAILED MECHANISM
	F	2	10.20	0.	2.9	298-472		X	HIGH PRESSURE LIMIT DETAILED MECHANISM
T1 1967	F	3	16.0	0.	3.5			R	SELECTED (REF 63)
Z1 1965	F	3	14.48			2050		R	SELECTED (REF Z3)
B4 1960	R	2	32.43	-4.5	127.555			R	CURVE FIT DATA OF D1 SET E = DISSN ENERGY UNUSUAL PREXPON.
B33 1963	R	2	11.5	0.5	86.0	2550-3000	SINGLE PULSE SHOCK+ GAS CHROMATOGRAPHY, INTENSITY MEASUREMT	X	M = AR TWO METHODS AGREE
B38 1969	R	2	32.04	-4.5	126.8			R	M = N2
	R	2	31.98	-4.5	126.8			R	M = AR
B83 1969	R	2	18.117	-0.58	125.735	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	M = AR FROM REVERSE
C23 1969	R	2	13.36 (0.36)	0.	74.1 (6.3)	2800-3200	SHOCK TUBE/MASS SPEC (O) FROM N2O DECOMP	X	M = NE SUPERSEDED BY C26
C26 1971	R	2	14.97	0.	100.	2800-3200		R	M = NE SUPERSEDES C23 REINTERP HC IMPURITY
D14 1964	R	2	11.460	0.5	74.7	3500-6000	SHOCK TUBE CO2 I.R. EMISSION	X	M = AR
	R	2	11.389	0.5	74.5	3500-6000		X	M = N2
D15 1965	R	2	11.063	0.5	68.2	6000-11000	SHOCK TUBE CO2 BY U.V. AND I.R.	X	UV RES CONSID. LOW I.R. RESULTS QUOTED
F23 1966	R	2	11.652	0.5	84.5	3000-5000	SHOCK TUBE CO2 BY I.R. EMISSION	X	M = AR CONSIDER CO2+O RXN
	R	2	11.727	0.5	79.6	3000-5000		X	M = N2
H2 1967	R	2	11.43	0.5	74.5	3473-5973		R	M = N2, AR SURVEY
K45 1970	R	2	33.20	-4.77	129.75	2800-11000		R	SUGGESTED M = AR
	R		13.60 (0.09)	0.	81.23 (1.68)	3000-8000		R	SUGGESTED M = N2
M19 1966	R	2	11.08	0.5	68.27			R	SELECTED (REF D 14)
O1 1967	R	3	14.7	0.	99.	2800-4400	SHOCK-TUBE DECOMPOSITION OF CO2	X	M = AR
O1 1967	R	2	11.3	0.	111.	2800 3500	SHOCK TUBE DECOMPOSITION OF CO2	X	UNIMOLECULAR HIGH PRESSURE LIMIT
S33 1972	R	2	15.924	0.	124.5	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS

230. CO + O2 + CO2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
R18 1967	F	2	12.40	0.	48.0			A	INTERP DATA OF M11 DIFF MECH 1500-2400K EFF M2O INCLUDED
B80 1971	F	2	13.20 (0.54)	0.	41.		SHOCK TUBE STUDY M2/CO/CO2/O2/AR MIX CO FLAME BAND EMISS	A	ASSUME E = 41 KCAL
C1 1967	F	2	12.54 (3.0)	0.	51.			A	SELECTED (REF S10)
D20 1970	F	2	12.54	0.	50.0	2200-2600	INCIDENT SHOCK CO/O2/AR TRACE M2 (CO),(CO2) BY IR	X	
D22 1971	F	2	13.08	0.	60.0	1750-2575	INCIDENT SHOCK CO/O2/AR TRACE CM4 (CO),(CO2) BY IR	X	BEST FIT TO EXPT
M19 1966	F	2	8.5 (1.0)	1.0	36.18			C	TRANS STATE THEORY ACT ENERGY RELATED TO HEAT RX+DISSN EN
R13 1974	F	2	11.08 (0.08)	0.	35.	1500-2500	SHOCK INITIATED COMBUST M2/O2/CO/AR INDUCTION TIMES	X	REANALYSIS PREV DATA (REF G25)
S10 1965	F	2	12.54 (0.16)	0.	51.0 (7.0)	2400-3000	SHOCK TUBE-CO/O2 MIX AR DILUENT CO2 BY I.R. EMISSION	X	
T1 1967	F	2	12.54	0.	51.			A	SELECTED (REF S10)
B5 1968	R	2	13.28	0.	54.15			R	TENTATIVE RECOMMEND. REF S10, B18 USE WITH CAUTION
B18 1967	R	2	13.23	0.	53.0	1500-3000		R	FROM REVERSE
C23 1969	R	2	13.19 (0.79)	0.	32.5 (10.9)	2800-3200	SHOCK TUBE/MASS SPEC (O) FROM N2O DECOMP	X	ADDITION O2 DECREASE RATE 40 PCT
T1 1967	R	2	11.7	0.5	8.			C	ORDER MAGNITUDE EST

			Z31.	M	+ M	+ M	+ M2	+ M		
REF	DIR	DEG	A	B	C	T	EXPERIMENTAL		TYP	COMMENTS
D13 1965	F	3	13.8 (0.1)	0.	-1.4 (0.46)	300-5000			K	EVALUATION M = H2O
	F	3	14.52 (0.01)	0.	-1.4 (0.46)	300-5000			K	EVALUATION M = N2
	F	3	15.7 (0.09)	0.	-0.2 (0.4)	300-5000			K	EVALUATION M = H
	F	3	13.8 (0.01)	0.	-1.4 (0.4)	300-5000			K	EVALUATION M = N2
D30 1958	F	3	16.24			1650			K	M = H2O BASED ON [illegible]
B72 1968	F	3	15.14 (0.06)			298	DISCHARGE-FLOW SYST INI BY ESR		K	M = N2 ROOM TEMPERATURE
B79 1971	F	3	15.25 (0.06)			298	FLOW REACTOR W WIRE OR DISCHARGE INI BY ESR		K	M = N2
	F	3	15.30 (0.06)			298			K	M = HE
	F	3	15.43 (0.06)			298			K	M = AR
	F	3	15.24 (0.06)			298			K	M = N2
	F	3	15.41 (0.06)			298			K	M = CO2
	F	3	15.42 (0.06)			298			K	M = CH4
B83 1969	F	3	16.00	-1.0	0.	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY		K	M = AR BEST FIT TO EXPT
	F	3	16.30	-1.0	0.	1400-3000			K	M = N2
	F	3	16.40	-1.0	0.	1400-3000			K	M = H2
	F	3	19.30	-1.0	0.	1400-3000			K	M = H
B85 1973	F	3	18.0	-1.	0.	200-4000			C	EMPIRICAL CORELATION
B88 1972	F	3	15.5 (0.2)			300			R	M = N2 EVALUATION
	F	3	14.9 (0.2)			300			R	M = AR EVALUATION
C1 1967	F	3	18.88 (1.0)	-1.0	0.				R	SELECTED M = ANY
D2 1965	F	3	14.93			1072			K	M = N2,H2O
	F	3	15.74			1072			K	M = H2
D3 1970	F	3	15.65 (0.12)			1050	RICH FLAME H2/N2/O2		K	M = ANY
D13 1962	F	3	15.28			1072	H2-O2-N2 FLAME		K	M = H2O,N2
	F	3	15.51			1072	H2-O2-N2 FLAME		K	M = H2
E1 1963	F	3	17.54	-0.5	0.				R	AVERAGED EXPTL DATA
	F	3	17.85	-0.5	0.				R	AVERAGED EXPTL DATA

231. - + M + M + H2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
F5 1963	F	3	15.3			2000		R	SUGGESTED
G6 1969	F	3	14.58			1500	SHOCK TUBE STUDY LEAN H2/O2/H2O/AR OH BY UV ABSORPTION	X	M = AR
	F	3	14.5			1500		X	M = N2
	F	3	16.0			1500		X	M = H2O UPPER LIMIT
G20 1974	F	3	15.48 (0.2)			300		R	M = H2 PREFERRED VALUE BASED ON REF 888
	F	3	14.88 (0.2)			300		R	M = AR PREFERRED VALUE BASED ON REF 888
	F	3	17.81 (0.3)	-1.	0.	1700-5000		R	M = AR PREFERRED VALUE BASED ON REF 888
	F	3	18.41 (0.3)	-1.	0.	1700-5000		R	M = H2 PREFERRED VALUE BASED ON REF 888
H2 1967	F	3	19.0	-1.0	0.	3473-5273		R	SURVEY M = H
	F	3	18.4	-1.0	0.	298-5273		R	M = H2
	F	3	18.4	-1.0	0.	298-5273		R	M = H2O
	F	3	18.4	-1.0	0.	298-5273		X	M = N2
	F	3	18.2	-1.0	0.	3473-5273		R	M = AR
H14 1969	F	3	15.568			1900	STUDY OF H2/O2 FLAME (H) BY LI/LIOH TECHN	X	M = N2 AVERAGE OF K FOR 1800 AND 2000 K
	F	3	15.673			1900		X	M = HE AVERAGE OF K FOR 1800 AND 2000 K
	F	3	15.36			1900		X	M = AR AVERAGE OF K FOR 1800 AND 2300 K
	F	3	15.709			1900		X	M = CO,CO2 ASSUMED EQUAL EFFIC AVERAGE K
H21 1969	F	3				2500-7000	SHOCK TUBE STUDY LINE REVERSAL METHOD	X	LOG K = 15.243-0.000195T M = H2
	F	3				2500-7000		X	LOG K = 15.787-0.000275T M = AR
H26 1970	F	3	15.26 (0.14)			1900	H2/O2 FLAME STUDY	X	M = AR SUPERSEDES REF H14
	F	3	15.26 (0.14)			1900		X	M = HE
	F	3	15.28 (0.14)			1900		X	M = N2
	F	3	15.73 (0.07)			1900		X	M = CO, CO2
H27 1967	F	3	15.15			2500	SHOCK TUBE STUDY SPECTRUM LINE REVERS	X	M = H2 TEMP DEP INDIC(-3/2)
	F	3	14.59			7000		X	M = H2
	F	3	16.95			2500		X	M = H TEMP DEP INDIC(-7)
	F	3	14.57			5500		X	M = H

231. H + H + M + H2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
H34 1970	F	3	15.48 (0.02)			298	FLOW REACTOR H BY HOT FILAMENT CATALYTIC PROBE DET	X	M = H2 EXPTS TO 77K INDIC TEMP DEP (-0.6)
I1 1964	F	3	21.08	-2.0	0.			R	SELECTED
J1 1967	F	3	18.6 (0.7)	-1.0	0.	1000-3500		R	SELECTED M = ANY AVERAGE M DOUBTFUL
J11 1967	F	3	18.00	-1.0	0.	2900-4700	INCIDENT SHOCK H2/HCL/AR MIX FOLLOWED HCL	X	M = AR
	F	3	18.40	-1.0	0.	2900-4700		X	M = H2
	F	3	19.30	-1.0	0.	2900-4700		X	M = H
K3 1964	F	3	18.88	-1.0	0.	300-5000		R	EVALUATION M = H2O
	F	3	18.40	-1.0	0.	300-5000		R	EVALUATION M = H2
	F	3	19.0	-1.0	0.	300-5000		R	EVALUATION M = H
K25 1963	F	3	15.95 (0.02)			350	DISCHARGE FLOW SYST	X	
K39 1967	F	3	18.02	-1.0	0.	300-4000		R	RECOMMENDED M = AR
	F	3	18.58	-1.0	0.	300-3500		R	RECOMMENDED M = H2
	F	3	17.47	-0.5	0.	300-3500		R	RECOMMENDED M = H
K45 1970	F	3	17.49 (0.22)	-0.87	0.	200-5330		R	SUGGESTED M = HE
K45 1970	F	3	18.78 (0.15)	-1.09	0.	290-7000		R	SUGGESTED M = H2
K45 1970	F	3	20.36	-1.5	0.	1273-2078		R	SUGGESTED M = ANY
L5 1964	F	3	15.53 (0.06)			293	DISCHARGE FLOW SYST H DECAY CALORIMETRIC PROBE	X	M = H2
	F	3	15.36 (0.07)			293		X	M = AR
L13 1965	F	3	15.53 (0.06)			293	FAST FLOW SYSTEM CALORIMETRIC PROBE	X	M = H2
	F	3	15.45 (0.04)			213		X	M = AR
	F	3	15.36 (0.05)			293		X	M = AR
	F	3	15.30 (0.05)			349		X	M = AR
	F	3	16.4			293		X	M = H2O UPPER LIMIT
M23 1962	F	3	16.08 (0.08)			300	DISCHARGE-FLOW SYST ESR ATOM DETECTION	X	M = H2
M24 1965	F	3	17.00			1675	SHOCK TUBE STUDY ATOMIC RES ABS SPECT H2/AR MIX	X	M = AR APPARENT AIR CATAL OBSERVED
	F	3	15.68			2145		X	M = AR
N3 1964	F	3	16.0	0.	0.			R	SUGGESTED

231. M + M + M + M2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
R3 1964	F	3	15.44	0.	0.	1500-1600	H2-O2-N2 FLAME	A	M = H2
	F	3	14.74	0.	0.	1500-1600		A	M = N2
R7 1962	F	3	19.18 (0.11)	-1.0	0.	2800-5000	INCIDENT SHOCK X-RAY DENSITOMETRY	A	M = XE 1/T DEPEND. ASSUMED FROM REVERSE
	F	3	18.5 (0.2)	-1.0	0.	2800-5000		A	M = H2 1/T DEPEND. ASSUMED FROM REVERSE
	F	3	19.0 (0.2)	-1.0	0.	2800-5000		A	M = H 1/T DEPEND. ASSUMED FROM REVERSE
S4 1965	F	3	18.176	-1.0	0.	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	R	SELECTED M = AR
	F	3	19.477	-1.0	0.	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	R	SELECTED M = H2O
S28 1962	F	3	17.80	-1.0	0.	2800-4500	INCIDENT SHOCK DENSITY PROFILE	A	M = AR FROM FIGURE AT 3500K USING 1/T DEPENDENCE
	F	3	18.41	-1.0	0.	2800-4500		A	M = H2 FROM FIGURE AT 3500K USING 1/T DEPENDENCE
	F	3	19.51	-1.0	0.	2800-4500		A	M = H FROM FIGURE AT 3500K USING 1/T DEPENDENCE
S33 1972	F	3	14.598	0.	2.750	1500-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	R	M = AR 23 RA MECH LIT RATES VARIED WITHIN ERROR LIMITS
	F		15.602	0.	2.750	1300-2500		A	M = H2O
S39 1973	F	3	15.86 (0.10)			300		C	MOD PHASE-SPACE THEO MONTE CARLO TRAJECT PORTER-KARPLUS H3
	F	3	15.82 (0.11)			1000		C	
	F	3	15.61 (0.08)			5000		C	
	F	3	15.51 (0.09)			5000		C	
	F	3	14.71 (0.13)			10000		C	
T1 1967	F	3	18.3	-1.0	0.			R	SELECTED (REF A3) M = ANY
	F	3	18.7	-1.0	0.			R	M = H2
	F	3	19.18	-1.0	0.			R	M = H2O
	F	3	19.3	-1.0	0.			R	M = H
T2 1965	F	3	17.8	-1.0	0.	200-4000		R	RECOMMENDED VALUE TO COVER WIDE TEMP RANGE
B11 1965	R	2	21.0	-1.5	103.24			R	SELECTED (REF D 7) M = ANY
	R	2	22.542	-2.0	108.0			R	SELECTED (REF S12) M = AR
	R	2	23.843	-2.0	108.0 (0.46)			R	SELECTED (REF S12) M = H2O
	R	2	20.26	-1.5	103.27			R	SELECTED (REF G11) M = H2
	R	2	18.09	-0.5	103.27			R	SELECTED (REF G11) M = H

231. M + M + M + M2 + M

REF	DIA	DAD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
813 1963	M	2	14.452 (0.092)	0.	102.6			K	EVALUATION M = H2O
	K	2	15.23 (0.09)	0.	102.6 (0.46)			K	EVALUATION M = M2
	K	2	16.67 (0.09)	0.	104. (0.4)			K	EVALUATION M = M
	K	2	14.452 (0.092)	0.	102.6 (0.46)			K	EVALUATION M = N2
883 1969	K	2	17.654	-0.82	101.240	1400-5000	SHOCK TUBE STUDY M2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	K	M = AR FROM REVERSE
	K	2	18.154	-0.82	103.240	1400-5000		K	M = N2
	K	2	18.254	-0.82	103.240	1400-5000		K	M = M2
	K	2	18.154	-0.82	103.240	1400-5000		K	M = M
885 1973	Q	2	22.24	-2.	107.4	200-4000		C	FROM REVERSE
888 1972	Q	2	14.94 (0.30)	0.	96.0 (4.0)	2500-5000		K	M = M2 EVALUATION
	K	2	14.34 (0.30)	0.	96.0 (4.0)	2500-5000		K	M = AR EVALUATION
894 1973	Q	2	13.971	0.	88.9	5500-6000	INCIDENT SHOCK WAVES DENSITY GRADIENTS BY LASER BEAM DEFLECT	K	OVERALL RATE COEFF OF HIGH PRECISION
	K	2	15.519	0.	105.3	5500-6000		K	
	K	2	15.326	0.	87.2	5500-6000		K	
211 1961	Q	2	17.26	-0.5	103.2	3000-4500	SHOCK TUBE H2/XE MIX	K	M = XE
	K	2	20.26	-1.5	103.2	3000-4500	SHOCK TUBE H2/XE MIX	K	M = H2
	K	2	18.08	-0.5	103.2	3000-4500	SHOCK TUBE H2/XE MIX	K	M = M
220 1974	Q	2	14.35 (0.3)	0.	96.0	2500-5000		K	M = AR PREFERRED VALUE BASED ON REF 888
69 1964	Q	2	19.04	-0.82	103.2			R	EVALUATION M = H2O
	K	2	18.56	-0.82	103.2			R	EVALUATION M = H2
	Q	2	19.15	-0.82	103.2			R	EVALUATION M = M
94 1968	Q	2	12.348	0.5	92.6	2290-3790	SHOCK TUBE STUDY H2/AR MIX	K	M = AR
	K	2	19.09	0.5	92.6	2290-3790		K	M = H2
54 1965	Q	2	22.562	-2.0	108.0	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	K	SELECTED M = AR
	K	2	23.843	-2.0	108.0	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	K	SELECTED M = H2O
535 1972	Q	2	15.000	0.	101.8	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	K	M = AR 23 RX MECH LIT RATES VARIED WITHIN ERROR LIMITS
	K		16.204	0.	101.8	1300-2500		K	M = H2O

231. H + H + M + H2 + M

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
539 1973	R	2	-59.29 (0.10)			300		C	MOD PHASE-SPACE THEO MONTE CARLO TRAJECT PORTER-KARPLUS H3
	R	2	-6.39 (0.11)			1000		C	
	R	2	8.61 (0.08)			3000		C	
	R	2	11.51 (0.09)			5000		C	
	R	2	13.01 (0.13)			10000		C	

232. H + HN + H2 + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B97 1973	F	2	11.6	0.5	8.			C	ESTIMATE TRANS STATE CORELAT
M5 1968	F	2	11.85	0.67	1.9			C	JOHNSTON-PARR CALC
T1 1967	F	2	12.00	0.68	1.9			C	JOHNSTON-PARR CALC
M5 1968	R	2	12.46	0.67	21.6			C	JOHNSTON-PARR CALC

233. H + HNO + HN + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.3	0.5	13.			C	ORDER MAGNITUDE EST

234. H + HNO = H2 + NO

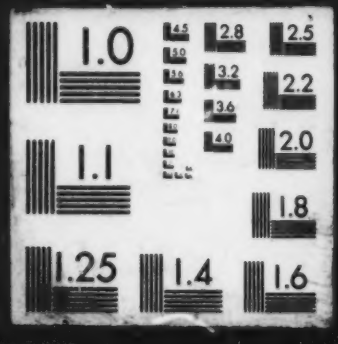
REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B46 1964	F	2	12.78 (0.18)	0.	0.	1600-2000	H2/O2/N2 FLAME	R	
B90 1973	F	2	12.68 (0.18)			2000		R	EVALUATION VALUE FROM REF H39
C4 1961	F	2	9.78			293	H2 DISCHARGE	R	LOWER LIMIT OF K
C20 1962	F	2	10.5			226	H2 DISCHARGE	R	LOWER LIMIT OF K
G21 1973	F	2	12.68 (0.2)			2000		R	PREFERRED VALUE EVALUATION
H2 1967	F	2	12.8			1773		R	SURVEY E APPROX ZERO
H31 1972	F	2	10.5	0.	0.	211-703		R	LOWER LIMIT PREFERRED VALUE
	F	2	12.78 (0.18)	0.	0.	1600-2000		R	PREFERRED VALUE MAXIMUM E=2.7 KCAL/M
N6 1964	F	2	11.9	0.5	2.4			R	SUGGESTED
S1 1967	F	2	13.1	0.	2.9	200-2000		R	RECOMMENDED VALUE ESTIMATED BASED ON REFS B46, C20
T1 1967	F	2	12.59	0.5	0.			C	ESTIMATED
B90 1973	R	2						R	NO RECOMMENDATION NO EXPERIMENTAL DATA
G20 1974	R	2	6.70 (0.2)			2000		R	PREFERRED VALUE FROM REVERSE NO DATA
G21 1973	R	2	6.50 (0.2)			2000		R	PREFERRED VALUE FROM REVERSE

235. H + HNO = H2O + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

3 OF 5
PB
248 139



236. H + HO + H2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B13 1965	F	2	12.734	0.	7.3 (0.6)	300-3000		R	FROM REVERSE RX
B50 1968	F	2	12.87 (0.20)	0.	7.30 (0.25)	400-3000		R	FROM REVERSE
B83 1969	F	2	13.288	0.03	8.053	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	FROM REVERSE
B88 1972	F	2	9.92 (0.15)	1.0	6.95 (0.30)	400-2000		R	EVALUATION
B97 1973	F	2	11.8	0.5	8.			C	ESTIMATE TRANS STATE CORELAT
C1 1967	F	2	12.15 (0.70)	0.	5.19			R	PRIVATE COMMUNIC. FROM BAHN AGREES WELL WITH K3
D25 1970	F	2	12.865	0.	7.3	400-3000		R	EVALUATION FROM REVERSE
D20 1974	F	2	9.93 (0.15)	1.	7.0	400-2000		R	PREFERRED VALUE BASED ON REF B88
H2 1967	F	2	12.15	0.	6.0	398-1673		R	SURVEY
K3 1964	F	2	12.15	0.	5.19			R	FROM REVERSE RX
K4 1963	F	2	12.76 (1.0)	0.	5.8 (1.5)	300-2000		R	PREFERRED VALUE
K45 1970	F	2	13.03	0.	7.97	370-1670		R	SUGGESTED
L5 1964	F	2	7.4			300		R	SUGGESTED FROM REVERSE BASED ON C3
M5 1968	F	2	11.20	0.79	4.3			C	JOHNSTON-PARR CALC
M9 1968	F	2	11.5			1000		C	JOHNSTON-PARR CALC
N3 1964	F	2	11.1	0.5	6.8			R	SUGGESTED
S1 1967	F	2	12.75	0.	7.53	400-2500		R	FROM REVERSE
S4 1965	F	2	12.740	0.	7.370	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	SELECTED
S33 1972	F	2	13.092	0.	7.300	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T2 1965	F	2	12.72	0.	7.5			R	FROM REVERSE
W31 1972	F	2	13.130 (0.3)	0.	8.05	500-3000		R	RECOMMENDED
A3 1961	R	2	13.825	0.	11.7 (0.7)	843-933	FIRST IGN. LIMIT CO/O2/H2 MIX	X	
A7 1965	R	2	10.0	0.	7.7	1400-2500	SHOCKED H2/O2/AR MIX USED INDUCTION TIMES	X	CONSTRAINED RATES TO AGREE WITH LOW TEMP RESULTS
B6 1956	R	2	10.31			793	1ST EXPLOSION LIMIT H2/O2 RXN KCL COATED VESSEL	X	UNCERTAIN WHETHER MEASURED RXN WAS (H2+OH) OR (H2+O)
B11 1965	R	2	12.40 (0.70)	0.	7.71 (1.0)	400-750		R	SELECTED (REF K4)
B13 1965	R	2	13.083	0.	9.2 (0.6)	300-3000		R	EVALUATION REFS C2, C3, C5, C6
B15 1966	R	2	11.3 (0.1)			993	HYDROGEN-OXYGEN FLAME+EPR SPECTROM	X	

236. H + HO + H2 + O

REF	DIR	ORD	A	N	C	T	EXPERIMENTAL	TYP	COMMENTS
815 1966	R	2	13.7	0.	11.7	900-1052		X	
816 1968	R	2	13.8	0.	10.	1400-3000	SHOCK TUBE H2/CO/O2	X	BEST FIT ANALYT, EXP
850 1968	R	2	13.24 (0.20)	0.	9.45 (0.25)	400-3000		R	EVALUATION
871 1970	R	2	13.471 (0.184)	0.	9.8 (1.3)	1165-1620	SHOCK TUBE STUDY H2/CO/CO2/O2/AR MIX (O) BY CO+O EMISSION	X	BASED ON K(H+O2=OH+O) FROM A3,B8,K4
874 1968	R	2	13.50	0.	10.7	978-1067	DILUTE CO/H2 FLAMES (H) AND (O) BY ESR	X	
880 1971	R	2	13.471 (0.184)	0.	9.8 (1.3)	1100-1600	SHOCK TUBE STUDY H2/CO/CO2/O2/AR MIX CO FLAME BAND EMISS	X	
	R	2	11.673			1172		X	
	R	2	11.698			1212		X	
	R	2	11.727			1250		X	
	R	2	11.801			1255		X	
	R	2	11.883			1266		X	
	R	2	11.806			1272		X	
	R	2	11.901			1297		X	
	R	2	11.838			1315		X	
	R	2	11.801			1327		X	
	R	2	11.819			1335		X	
	R	2	11.907			1353		X	
	R	2	11.813			1360		X	
	R	2	11.872			1422		X	
	R	2	11.914			1436		X	
	R	2	11.873			1454		X	
	R	2	11.930			1498		X	
	R	2	12.205			1504		X	
	R	2	12.101			1543		X	
	R	2	12.223			1575		X	
	R	2	12.194			1612		X	
882 1970	R	2	13.59 (0.09)	0.	10.0 (0.2)	408-520	VACUUM FLOW SYST HF DISCHARGE (O) BY EPR	X	

236. H + HO + H2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
					e				
B83 1969	R	2	13.78	0.	10.0	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	BEST FIT TO EXPT
B88 1972	R	2	10.26 (0.15)	1.0	8.90 (0.30)	400-2000		R	EVALUATION
B93 1973	R	2	10.26 (0.11)	1.	8.90	400-2000		R	CRITICAL EVALUATION ACCURATE OVER QUOTED TEMP RANGE
C2 1963	R	2	13.08	0.	9.2 (0.6)	409-733	DISCHARGE FLOW SYST O FROM N + NO MEASURED H AND OH	X	
C3 1963	R	2	11.6	0.5	8.9	409-733	DISCHARGE FLOW SYST O FROM N + NO	X	
C6 1961	R	2	13.08 (0.04)	0.	9.2	409-733	DISCHARGE FLOW SYST O FROM N + NO O FROM AIR AFTERGLOW	X	
C8 1968	R	2	7.08 (0.03)			320	DISCHARGE FLOW SYST O FROM N + NO O FROM AIR AFTERGLOW	X	
D20 1970	R	2	13.96	0.	10.0	1700-2600	INCIDENT SHOCK CO/O2/AR TRACE H2 (CO),(CO2) BY IR	X	
F6 1964	R	2	12.95	0.	9.			R	SUGGESTED VALUE FLAME TEMPERATURES
F7 1965	R	2	13.04	0.	9.4	400-1810		R	EVALUATION
F9 1963	R	2	11.48 (0.04)			1815	H2/O2/N2/N2O FLAME H2O, NO, O2, H2, N2O PROFILES DETERMINED	X	
	R	2	11.40 (0.06)			1660		X	
F9 1963	R	2	12.40	0.	7.7			R	OWN RESULTS COMBINED WITH REF B6
G3 1967	R	2	14.25 (0.10)	0.	14.91	1290-1667	SHOCK TUBE H2/O2 RX CO + O CONTINUUM FOLLOWED	X	ACCURACY QUOTED AS PLUS OR MINUS 25 PCT
G3 1967	R	2	13.91	0.	10.0	400-1667	SHOCK TUBE H2/O2 RX CO + O CONTINUUM FOLLOWED	R	FITTED OWN HIGH TEMP RESULTS AND LOW TEMP RESULTS OF OTHERS
G4 1967	R	2	12.297 (0.15)			1500	SHOCK TUBE STUDY H2/O2/CO/AR MIXTURES O BY CO + O RECOMB	X	ACCURACY QUOTED AS PLUS OR MINUS 40 PCT
G4 1967	R	2	13.75	0.	10.2	975-1060		R	USE EXPT AT 1500 K AND ASSUMED ACTIVATION ENERGY
G25 1974	R	2	10.26 (0.1)	1.	8.90	400-2500		R	PREFERRED VALUE BASED ON REF B88
H2 1967	R	2	12.52	0.	8.0	398-1673		R	SURVEY
H5 1967	R	2	13.11	0.	9.4	373-478	DISCHARGE FLOW SYST O FROM N + NO ESR + MASS SPEC	X	
J1 1967	R	2	13.3 (0.7)	0.	8.2	1000-3500		R	EVALUATION VALUE IN AGREEMENT W REFS K10 AND W4
J10 1970	R	2	13.88	0.	11.1	1200-1800	INCIDENT SHOCK H2/O2/AR MIX (OH) BY UV ABSORPT	X	
K3 1964	R	2	12.52 (0.7)	0.	7.14 (1.0)	300-2500		R	PREFERRED VALUE BASED ON A6, C2, F4
K4 1963	R	2	12.40	0.	7.7	300-2000		R	EVALUATION
K5 1959	R	2	12.8	0.	6.0			R	REVIEW OF RADICAL REACTIONS IN FLAMES
K16 1958	R	2	7.5 (0.2)			298	O2 DISCHARGE AIR AFTERGLOW W/ H2 EXCITED O2 PRESENT	X	ROOM TEMPERATURE
K17 1958	R	2	10.51	1.0	6.0			R	SELECTED BASED ON B6, F12

236. M + HO + H2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
F+1 1969	R	2	13.6	0.	10.2			R	RECOMMENDED
K45 1970	R	2	13.39 (0.07)	0.	9.84 (0.17)	373-1667		R	SUGGESTED
M4 1968	R	2	12.52	0.5	6.45	1700-2700	SHOCK TUBE STUDY H2/AR PLUS O2 MIX	X	
M5 1968	R	2	11.79	0.80	6.1			C	JOHNSTON-PARR CALC
M9 1968	R	2	5.6			300		C	JOHNSTON-PARR CALC
M11 1965	R	2	12.52	0.	7.14	1500-3300	CO OXIDATION SHOCKED CO-O2-AR MIX	X	SELECTED (REF K3)
R2 1966	R	2	13.08	0.	9.2	1400-2500	SHOCKED H2/O2/AR MIX	X	BEST FIT
S1 1967	R	2	13.10	0.	9.4	400-2500		R	RECOMMENDED VALUE BASED ON C2, C3, R2
S33 1972	R	2	13.456	0.	9.450	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	R	2	13.6	0.	10.			R	SELECTED PRIV COMM WESTENBERG ATTRIB REF W5 IN GA
W3 1965	R	2	11.5	0.5	8.7			R	SUGGESTED
W4 1965	R	2	8.08 (0.08)			397	STIRRED FLOW REACTOR MASS SPEC ANALYSIS	X	
	R	2	7.98 (0.09)			400		X	
	R	2	8.38 (0.08)			428		X	
	R	2	8.71 (0.08)			450		X	
	R	2	9.30 (0.04)			508		X	
	R	2	9.23 (0.03)			508		X	
	R	2	9.89 (0.02)			596		X	
	R	2	9.95 (0.05)			600		X	
W4 1965	R	2	13.63	0.	10.2	397-600	STIRRED FLOW REACTOR MASS SPEC ANALYSIS	X	
W8 1967	R	2	8.28 (0.04)			409	DISCHARGE FLOW SYST O FROM N + NO ESR ATOM DETECTION	X	
	R	2	8.83 (0.06)			464		X	
	R	2	9.75 (0.03)			570		X	
	R	2	10.45 (0.04)			699		X	
	R	2	10.71 (0.04)			734		X	
	R	2	10.97 (0.01)			830		X	
	R	2	11.23 (0.05)			928		X	

236. H + HO = H2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
W8 1967	R	2	3.60 (0.04)	0.	10.2	409-928		X	
W9 1967	R	2	7.90 (0.04)			357	DISCHARGE FLOW SYST O FROM N + NO ESR ATOM DETECTION	X	
	R	2	8.32 (0.02)			412		X	
W9 1967	R	2	13.67 (0.12)	0.	10.2 (0.5)	400-950		R	COMBINED LOW TEMP RESULT W/ HIGH TEMP RESULT OF W8
W25 1969	R	2	7.90 (0.04)			357		X	SUPERSEDES REF W8
	R	2	8.34 (0.02)			412		X	
	R	2	8.38 (0.03)			423		X	
	R	2	9.121 (0.01)			514		X	
	R	2	9.83 (0.02)			613		X	
	R	2	10.77 (0.04)			812		X	
	R	2	10.95 (0.03)			910		X	
W25 1969	R	2	13.51	0.	10.2	500-900		X	SUPERSEDES REF W8
W44 1973	R	2	13.18	0.	9.4	298-2500		R	RECOMMENDED

237. H + HO + M → H2O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B13 1965	F	3	16.97 (0.14)	0.	-1.85	1000-2200		R	SUGGESTED VALUES M = H2O
	F	3	16.28 (0.1)	0.	-1.85	1000-2200		R	M = N2
B16 1968	F	3	17.18	-0.5	0.	1400-3000	SHOCK TUBE STUDY H2/CO/O2 SYSTEM	X	USED DENSITY PROFILE VALUE BEST FIT
B30 1958	F	3	16.74			2270	H2-O2-N2 FLAME BY FLAME PHOTOMETRY	X	M = H2O
	F	3	16.81			2290		X	
	F	3	17.09			2195		X	
	F	3	17.08			2165		X	
	F	3	17.27			2110		X	
	F	3	17.28			2085		X	
	F	3	17.74			1650		X	
B31 1962	F	3	17.455 (0.041)			300	FLASH PHOTOLYSIS OF WATER VAPOR TEMP APPROX	X	VALUES BASED ON K(H+OH+H2O) REF O2 M = H2O
	F	3	16.08 (0.05)			300		X	M = HE
	F	3	16.21 (0.05)			300		X	M = AR
	F	3	16.36 (0.04)			300		X	M = XE
	F	3	16.73 (0.04)			300		X	M = N2
	F	3	16.92 (0.10)			300		X	M = O2
	F	3	16.84 (0.12)			300		X	M = CO2
B50 1968	F	3	17.068 (0.2)			2040		R	CAUTION RECOMMENDED
B83 1969	F	3	17.18	-0.5	0.	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	M = AR BEST FIT TO EXPT
B85 1973	F	3	19.0	-1.	0.	200-4000		C	EMPIRICAL CORELATION
B88 1972	F	3	23.15 (0.18)	-2.0	0.	1000-3000		R	EVALUATION M = H2O
	F	3	22.34 (0.30)	-2.0	0.	1000-3000		R	M = N2
	F	3	21.92 (0.30)	-2.0	0.	1000-3000		R	M = AR
C1 1967	F	3	19.0 (3.0)	-1.0	0.			R	EVALUATION M = ANY
D2 1965	F	3	17.04			1072	H2/N2/O2 FLAME	X	M = N2 OR H2O
D13 1962	F	3	16.95			1072	H2-O2-N2 FLAME	X	M = H2O OR N2 PROBABLY SIMILAR K FOR M = H2
F14 1936	F	3	16.38			300	ELECTRIC DISCHARGE WATER VAPOR	X	ASSUMED (OH) = 10 PCT DISSOC H2O M = H2O

237. H + HO + M = H2O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
	F	3	16.04			300		X	M = HE
G6 1969	F	3	15.52			1500	SHOCK TUBESTUDY LEAN H2/O2/H2O/AR OH BY UV ABSORPTION	X	M = AR
	F	3	15.93			1500		X	M = N2
	F	3	16.82			1500		X	M = H2O
	F	3	17.20			1500		X	M = H2 UPPER LIMIT
G9 1967	F	3	15.73 (0.18)	0.	0.	1307-1846	SHOCK TUBE STUDY H2/O2 SYSTEM (OH) BY U.V. ABSORPT	X	M = AR
G20 1974	F	3	22.34 (0.3)	-2.	0.	1000-3000		R	PREFERRED VALUE BASED ON REF B88
H2 1967	F	3	22.26	-1.5	0.	1573-1973		R	SURVEY M = H2O
	F	3	21.56	-1.5	0.	1573-1973		R	M = N2
H14 1968	F	3	15.94			1915	STUDY OF H2/O2 FLAME (H) BY LI/LIOH TECHN	X	M = H2O
	F	3	15.673			1900		X	M = N2 AVERAGE OF K FOR 1800 AND 2000 K
	F	3	15.822			1900		X	M = AR AVERAGE OF K FOR 1800 AND 2000 K
	F	3	15.852			1900		X	M = HE AVERAGE OF K FOR 1800 AND 2000 K
H26 1970	F	3	15.51 (0.17)			1900	H2/O2 FLAME STUDY	X	M = AR SUPERSEDES REF H14
	F	3	15.90 (0.10)			1900		X	M = HE
	F	3	15.51 (0.25)			1900		X	M = N2
	F	3	16.43 (0.05)			1900		X	M = H2O
	F	3	15.56			1900		X	M = CO, CO2 UPPER LIMIT
I1 1964	F	3	21.26	-2.0	0.			R	SELECTED
J1 1967	F	3	19.6 (1.0)	-1.0	0.	1000-3500		R	EVALUATION M = ANY
J3 1967	F	3	17.38	0.	-0.5	1330-1560	STIRRED-FLOW REACTOR H2/O2 RXN	X	M UNSPECIFIED
K3 1964	F	3	22.26	-1.5	0.	1600-2000		R	RECOMMENDED VALUES TEMP APPROXIMATE M = H2O
	F	3	21.65	-1.5	0.	1600-2000		R	M = ANY
K45 1970	F	3	24.3	-2.43	0.	1072-2000		R	SUGGESTED M = N2
M14 1962	F	3	17.17			2080	PROPANE-AIR FLAME (H) BY PHOTOMETRY	X	M = H2O
	F	3	17.06			2080		X	M = CO2
	F	3	16.3			2080		X	M = N2

237. H + HO + M = H2O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
O2 1959	F	3	17.69			300		X	M = H2O
	F	3	17.32			300		X	M = HE
P8 1958	F	3	16.64			2460	H2-O2-N2 FLAME BY SODIUM EMISSION	X	M = H2O
	F	3	16.79			2360		X	
	F	3	16.99			2270		X	
	F	3	17.22			2165		X	
	F	3	17.28			2085		X	
	F	3	16.79			2290		X	
	F	3	17.13			2195		X	
	F	3	17.32			2110		X	
	F	3	16.88			2085		X	
R3 1964	F	3	17.01	0.	0.	1300-1600	H2-O2-N2 FLAME	X	M = H2O
	F	3	16.81	0.	0.	1300-1600		X	M = N2
S4 1965	F	3	19.556	-1.0	0.	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	SELECTED M = AR
	F	3	20.857	-1.0	0.	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	SELECTED M = H2O
S19 1964	F	3	15.60 (0.18)	0.	0.	1400-2000	SHOCK TUBE STUDY OF H2/O2 SYSTEM	X	M = AR
S33 1972	F	3	16.146	0.	0.	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	M = AR 23 RX MECH LIT RATES VARIED WITHIN ERROR LIMITS
	F		17.079	0.	0.	1300-2500		X	M = H2O
T1 1967	F	3	21.65	-1.5	0.			R	SELECTED (REF K3) M = ANY
	F	3	22.26	-1.5	0.			R	SELECTED (REF K3) M = H2O
W31 1972	F	3	25.18 (0.5)	-2.6	0.	1000-3300		R	M = H2O RECOMMENDED
	F	3	23.88 (0.5)	-2.6	0.	1000-3300		R	M = AR RECOMMENDED
Z1 1965	F	3	16.28 (0.07)			2307	C2H2/AIR FLAME (OH) BY U.V. ABSORPT (H) BY LI EMISSION	X	M = N2 + H2O
	F	3	16.03 (0.09)			2410		X	
Z2 1965	F	3	17.74			2307	C2H2/AIR FLAME (OH) BY U.V. ABSORPT (H) BY K EMISSION	X	M = K
	F	3	15.9			2307		X	M = OH
B13 1965	R	2	17.59 (0.20)	0.	117.3 (0.46)	300-3000		R	FROM REVERSE RX M = H2O

237. ;; + HO + M + H2O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
	R	2	16.89 (0.15)	0.	117.3 (0.46)	300-3000		R	FROM REVERSE RX M = ANY
B24 1965	R	2	24.597	-2.0	123.2			R	SELECTED (REF S12) M = AR
	R	2	25.898	-2.0	123.2			R	SELECTED (REF S12) M = H2O
	R	2	21.0	-1.5	114.73			R	SELECTED (REF D7) M = HE
	R	2	23.0	-1.5	114.73			R	SELECTED (REF D7) M = XE
B50 1968	R	2	5.53 (0.18)			2040		R	FROM REVERSE E PROBABLY 119 KCAL CAUTION RECOMMENDED
B83 1969	R	2	17.598	-0.31	118.027	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	M = AR FROM REVERSE
B85 1973	R	?	23.89	-2.	122.6	200-4000		C	FROM REVERSE CORRECTED C
B88 1972	R	2	16.34 (0.2)	0.	105. (5.)	2000-6000		R	EVALUATION M = H2O
	R	2	15.54 (0.3)	0.	105. (5.)	2000-6000		R	M = N2
	R	2	15.11 (0.3)	0.	105. (5.)	2000-6000		R	M = AR
G20 1974	R	2	15.54 (0.2)	0.	105.1	2000-6000		R	M = N2 PREFERRED VALUE BASED ON REF B88
H24 1969	R	2	23.60 (0.05)	-2.2	118.	2570-3290	SHOCK TUBE STUDY H2O/AR MIX (OH) BY FLASH ABSORP	X	M = AR
	R	2	15.04 (0.07)	0.	105. (5.)	2570-3290		X	M = AR ALTERNATE EXPRESSION
	R	2	24.90 (0.9)	-2.2	118.	2570-3290		X	M = H2O
H24 1970	R	3	23.88	-2.6	0.	2570-3290	SHOCK TUBE STUDY H2O/AR MIX (OH) BY FLASH ABSORP	X	M = AR
	R	3	25.18	-2.6	0.	2570-3290		X	M = H2O
K3 1964	R	2	22.83	-1.31	118.0	300-2000		R	RECOMMENDED VALUES FROM REVERSE RXN M = H2O
	R	2	22.23	-1.31	118.0	300-2000		R	M = ANY
M1 1967	R	2	21.23	-0.5	117.6	2700-6000	SHOCKED H2O-AR MIX (H2O) BY I.R. EMISS (OH) BY U.V. ABSORP	X	M = AR
S4 1965	R	2	24.597	-2.0	123.2	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	SELECTED M = AR
	R	2	25.898	-2.0	123.2	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	SELECTED M = H2O
S33 1972	R	2	17.411	0.	119.5	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	M = AR 23 RX MECH LIT RATES VARIED WITHIN ERROR LIMITS
	R		18.342	0.	119.5	1300-2500		X	M = H2O
W44 1973	R	3	23.88	-2.6	0.			R	M = AR BASED ON REF H24
	R	3	25.18	-2.6	0.			R	M = H2O

238. H + HO2 → HO + HO

REF	DIA	383	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
821 1967	F	2	14.86	0.	0.	293-319		R	
824 1965	F	2	14.86	0.	0.			R	SELECTED FROM 821
848 1960	F	2	13.82			773	THERMAL REACTION	R	K IS THAT CALCULATED BY SCHOFIELD 1511
888 1972	F	2	14.4 (0.2)	0.	1.9 (0.7)	290-800		R	EVALUATION
36 1962	F	2	14.61			773		R	BASED ON K(HO2+HO2) FROM REF 821
819 1969	F	2				293	MASS SPEC ZONING OF DIFFUSION CLOUD	R	RELATIVE RATES TO HO+HO/H2+O2/H2O+O = 1.0/1.2/0.11
829 1973	F	2					FLAME VELOCITY MEAS COMPARED WITH CALC BASED ON MECHANISM	R	RELATIVE RATES TO HO+HO/H2+O2/H2O+O = 1.0/0.17/0.1
920 1974	F	2	14.40 (0.3)	0.	1.9	290-800		R	PREFERRED VALUE BASED ON REF 888
31 1967	F	2	13.8 (1.0)	0.	0.	1000-3500		R	SELECTED FROM 061
695 1970	F	2	14.23	0.	2.0	300-773		R	SUGGESTED
567 1973	F	2	14.40	0.	1.9 (0.7)			R	RECOMMENDED BASED ON 888
511 1971	F	2	14.0 (1.0)	0.	1.0	300-1000		R	EVALUATION BASED ON RATIO PATHS & ESTIMATED
516 1974	F	2	14.40 (0.3)	0.	1.9	300-1000		R	RECOMMENDED EVALUATION
888 1972	R	2	13.1 (0.2)	0.	40.1 (0.7)	290-800		R	FROM REVERSE

239. H + HO2 → H2 + O2

REF	DIA	383	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
888 1972	F	2	13.4 (0.3)	0.	0.7 (0.7)	290-800		R	EVALUATION
819 1969	R	2				293	MASS SPEC ZONING OF DIFFUSION CLOUD	R	RELATIVE RATES TO HO+HO/H2+O2/H2O+O = 1.0/1.2/0.11
829 1973	F	2					FLAME VELOCITY MEAS COMPARED WITH CALC BASED ON MECHANISM	R	RELATIVE RATES TO HO+HO/H2+O2/H2O+O = 1.0/0.17/0.1
920 1974	F	2	13.40 (0.4)	0.	0.7	290-800		R	PREFERRED VALUE BASED ON REF 888
31 1967	F	2	13.1 (1.0)	0.	0.	1000-3500		C	ESTIMATED BY COMPAR WITH H+HO2+HO+HO
567 1973	F	2	13.40	0.	0.7 (0.7)			R	RECOMMENDED BASED ON 888
511 1971	F	2	13.3 (1.0)	0.	1.0	300-1000		R	EVALUATION BASED ON RATIO PATHS
516 1974	F	2	13.40 (0.3)	0.	0.7	300-1000		R	RECOMMENDED EVALUATION
93 1964	F	2	10.9	0.5	2.0			R	SUGGESTED
533 1972	F	2	13.341	0.	5.403	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	R	23 RX MECHANISM EST RATES VARIED WITHIN ERROR LIMITS
71 1967	F	2	11.0	0.5	0.			C	ORDER MAGNITUDE EST
888 1972	R	2	13.7 (0.3)	0.	57.4 (0.7)	290-800		R	FROM REVERSE
533 1972	R	2	13.477	0.	63.0	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	R	23 RX MECHANISM EST RATES VARIED WITHIN ERROR LIMITS

240. H + HO2 = H2O + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B88 1972	F	2	12.9 (0.9)			293		R	NO RECOMMENDATION RATIO TO K(85),K(86) NO DIRECT MEASUREMT.
D19 1969	F	2				293	MASS SPEC ZONING OF DIFFUSION CLOUD	X	RELATIVE RATES TO HO+HO/H2+O2/H2O+O = 1.0/1.2/0.11
D29 1973	F	2					FLAME VELOCITY MEAS COMPARED WITH CALC BASED ON MECHANISM	X	RELATIVE RATES TO HO+HO/H2+O2/H2O+O = 1.0/0.17/0.1
L11 1971	F	2	13.0 (1.0)	0.	1.0	300-1000		R	EVALUATION BASED ON RATIO PATHS E ESTIMATED
L16 1974	F	2	13.7 (0.5)	0.	1.0	300-1000		R	RECOMMENDED EVALUATION EST ACTIVAT. ENERGY
B88 1972	R	2						R	NO RECOMMENDATION EXPECTED TO BE INSIG REL TO H2O+O=HO+HO

241. H + H2O + HO + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B13 1965	F	2	13.60	0.	19.9 (0.6)	300-3000		R	FROM REVERSE
B24 1965	F	2	14.48 (1.0)	0.	21.1 (1.5)			R	SELECTED (REF K4)
B50 1968	F	2	13.92 (0.14)	0.	20.1 (0.5)	300-3000		R	FROM REVERSE
B58 1965	F	2	13.63 (0.18)	0.	19.9 (0.6)	1000-1130	LOW PRESS FLAT FLAME	X	
B88 1972	F	2	13.97 (0.06)	0.	20.36 (0.20)	300-2500		R	EVALUATION
D1 1965	F	2	9.82 (0.06)			1072	H2/O2/N2 FLAME	X	REVISED VALUE DETERMINED RATIO TO K(H+O2O) = 1.8
D2 1965	F	2	13.96	0.	20.4	310-1072		R	EST FROM REVERSE
D29 1973	F	2	12.63 (0.06)			1090	H2/N2/O2 FLAMES DEUTERIUM ADDED	X	BASED ON HO/H2 RATIO
F4 1958	F	2	10.3			1285	FLAME STUDY (H) BY RXN (H+O2O)	X	K(H+O2O)=K(H+H2O) ASSUMED
F5 1963	F	2	15.0	0.	25.			R	SUGGESTED
F7 1965	F	2	13.70	0.	20.0	300-1600		R	EVALUATION
G20 1974	F	2	13.96 (0.2)	0.	20.4	300-2500		R	PREFERRED VALUE BASED ON B88
H2 1967	F	2	14.5	0.	21.			R	SURVEY
J3 1967	F	2	15.19	0.	25.49	1330-1560	STIRRED-FLOW REACTOR H2/O2 RXN	X	BEST FIT BETWEEN XPTL AND COMPT TEMPS
K3 1964	F	2	14.38	0.	20.7			R	CALCULATED FROM REV
K4 1963	F	2	14.48 (1.0)	0.	21.1 (1.5)	300-2000		R	FROM REVERSE RXN
K45 1970	F	2	14.03	0.	20.43	300-2200		R	
M8 1967	F	2	11.41	0.88	18.7	1000-4000		C	JOHNSTON-PARR CALC
S1 1967	F	2	14.26	0.	20.665	300-2500		R	FROM REVERSE
S4 1965	F	2	14.840	0.	21.62	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	EST FROM REVERSE
S33 1972	F	2	14.175	0.	20.10	1300-2900	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	F	2	11.46	0.7	18.			C	JOHNSTON-PARR CALC
T2 1965	F	2	14.5	0.	21.0			R	FROM REVERSE
W1 1968	F	2	14.04	0.	20.	300-1500		R	FROM REVERSE RXN
A7 1965	R	2	10.8	0.	5.9		SHOCKED H2/O2/AR MIX USED INDUCTION TIMES NOT SENSITIVE TO K	X	CONSTRAINED RATES TO AGREE WITH LOW TEMP RESULTS
A10 1967	R	2	11.28			813	H2/O2 RXN	X	ANALYT SOLN OF RXN MECHANISM
	R	2	11.30			823		X	

241. H + H2O = HO + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
	R	2	11.34			843		X	
A14 1964	R	2	14.52	0.	11.0	378-489	H2O DISCHARGE-FLOW OH BY SPECTROSCOPY	R	BASED ON A9
A17 1967	R	2	11.28			813	IGNITION LIMITS STATIC VACUUM APP MGO COATED VESSEL	X	
	R	2	11.30			823		X	
	R	2	11.34			843		X	
B6 1956	R	2	10.31			793	1ST EXPLOSION LIMIT H2/O2 RXN K CL COATED VESSEL	X	UNCERTAIN WHETHER MEASURED RXN WAS (H2+OH) OR (H2+O)
B13 1965	R	2	12.92	0.	4.7 (0.6)	300-3000		R	BASED ON XPTL DATA REFS D2 AND D4
B15 1966	R	2	11.98			900	HYDROGEN-OXYGEN FLAME+EPR SPECTROM	X	
	R	2	12.10			943		X	
	R	2	12.19			993		X	
	R	2	12.31			1052		X	
B15 1966	R	2	14.08 (0.15)	0.	8.6 (1.2)	900-1052		X	
B50 1968	R	2	13.34 (0.14)	0.	5.15 (0.15)	300-3000		R	EVALUATION
B71 1970	R	2	13.28 (0.41)	0.	4.8 (1.7)	1100-1600	SHOCK TUBE STUDY H2/CO/CO2/O2/AR MIX (O) BY CO+O EMISSION	X	
B80 1971	R	2	13.28 (0.41)	0.	4.8 (1.7)	1100-1600	SHOCK TUBE STUDY H2/CO/CO2/O2/AR MIX CO FLAME BAND EMISS	X	
	R	2	12.394			1083		X	
	R	2	12.688			1115		X	
	R	2	12.729			1117		X	
	R	2	12.212			1130		X	
	R	2	12.086			1152		X	
	R	2	12.617			1170		X	
	R	2	12.493			1180		X	
	R	2	12.111			1186		X	
	R	2	12.134			1195		X	
	R	2	12.188			1242		X	
	R	2	12.352			1280		X	
	R	2	12.433			1284		X	

241. H + H2O = HO + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
	R	2	12.479			1285		X	
	R	2	12.517			1344		X	
	R	2	12.316			1353		X	
	R	2	12.509			1370		X	
	R	2	12.533			1422		X	
	R	2	12.422			1444		X	
	R	2	12.594			1454		X	
	R	2	12.606			1472		X	
	R	2	12.628			1511		X	
	R	2	12.634			1533		X	
	R	2	12.559			1554		X	
	R	2	12.760			1573		X	
	R	2	12.659			1596		X	
	R	2	12.768			1596		X	
B80 1971	R	2	13.32 (0.41)	0.	5.1 (0.3)	300-1900		X	COMBINED OWN RESULTS WITH THOSE OF (G10)
B88 1972	R	2	13.34 (0.06)	0.	5.15 (0.20)	300-2500		R	EVALUATION
B93 1973	R	2	13.34 (0.11)	0.	5.15	300-2500		R	CRITICAL EVALUATION ACCURATE OVER QUOTED TEMP RANGE
C1 1967	R	2	11.8 (1.0)	0.5	5.0			R	SELECTED (REF D5)
D1 1965	R	2	12.20 (0.07)			1072	H2/O2/N2 FLAME	X	REVISED VALUE DETERMINED RATIO TO K(H+D2O) =1.8
D2 1965	R	2	12.04			915	H2/O2/N2 FLAME (OH) BY SPECTROSCOPY	X	ASSUMES ALL HYDROGEN CONSUMED IN RXN
D5 1966	R	2	9.59 (0.02)			300	DISCHARGE FLOW SYST OH FROM H+NO2 (OH) BY ESR	X	
D5 1966	R	2	13.36	0.	5.2	300-1950		R	CRITICAL SURVEY
D11 1965	R	2	12.04 (0.07)			1072	H2/O2/N2 FLAME ADDED TRACE CO2	X	BASED ON ENTHALPY OF OH = 9.33 KCAL
D11 1965	R	2	13.13 (0.3)	0.	5.0 (0.6)	310-1072		R	FITTED OWN HIGH TEMP RESULT WITH LOW TEMP RESULT OF D4
D19 1969	R	2	9.89 (0.12)			293	MASS SPEC ZONING OF DIFFUSION CLOUD	X	TOOK ACCOUNT OF HO+ O = H + O2
D25 1970	R	2	13.340	0.	5.15	300-3000		R	EVALUATION
E5 1971	R	2	13.0	0.	4.8	500-1500	LOW PRESS FLAT FLAME FUEL-RICH H2/O2	X	H2, O2, H2O, H, OH BY MASS SPEC, GC, UV ABSORPT, ESR SPEC

241. H + H2O = HO + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
F5 1963	R	2	14.40	0.	10.			R	SUGGESTED
F6 1964	R	2	13.8	0.	6.1			R	SUGGESTED VALUE FLAME TEMPERATURES
F9 1963	R	2	14.40	0.	10.0		H2/O2 FLAMES	X	REFERENCES F4
G7 1967	R	2	9.60 (0.02)			301	FLASH PHOTOLYSIS H2O/H2 MIX	X	
G10 1969	R	2	9.755 (0.014)			295	FLASH PHOTOLYSIS KINETIC SPECTROSCOPY	X	
	R	2	9.668 (0.029)			295		X	
	R	2	9.757 (0.022)			296		X	
	R	2	9.697 (0.012)			296		X	
	R	2	9.587 (0.023)			300		X	
	R	2	9.627 (0.019)			300		X	
	R	2	9.618 (0.035)			300		X	
	R	2	9.673 (0.016)			305		X	
	R	2	9.933 (0.067)			332		X	
	R	2	10.146 (0.009)			358		X	
	R	2	10.531 (0.011)			420		X	
	R	2	10.806 (0.028)			495		X	
	R	2	10.838 (0.012)			495		X	
	R	2	10.840 (0.006)			495		X	
	R	2	10.806 (0.016)			495		X	
	R	2	10.897 (0.034)			498		X	
G10 1969	R	2	12.61 (0.10)	0.	4.02 (0.18)	300-500	FLASH PHOTOLYSIS KINETIC SPECTROSCOPY	X	
G16 1968	R	2	9.60 (0.02)			300	FLASH PHOTOLYSIS KINETIC SPECTROSCOPY	X	
G22 1973	R	2	13.72 (0.08)	0.	6.5	1200-2500	SHOCK-INIT COMBUST. H2/O2/CO/CO2/AR MIX	X	DISCUSS POSSIBLE NONLINEAR ARRHENIUS
H2 1967	R	2	13.80	0.	5.9	298-1973		R	SURVEY
J1 1967	R	2	13.4 (0.5)	0.	5.5	1000-3500		R	EVALUATION
J3 1967	R	2	14.49	0.	10.3	1330-1560	STIRRED-FLOW REACTOR H2/O2 RXN	X	BEST FIT BETWEEN XPTL AND COMPT TEMPS
K3 1964	R	2	13.80	0.	5.9	300-2000		R	EVALUATION VALUE OF K4

241. H + H2O = HO + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
K4 1963	R	2	9.63 (0.09)			310	DISCHARGE FLOW SYST OH FROM H+NO2 (OH) BY U.V. ABSORPT	X	
K4 1963	R	2	13.80 (0.7)	0.	5.9 (1.0)	300-2000		R	EVALUATION
K5 1959	R	2	14.12	0.	10.0			R	REVIEW OF RADICAL REACTIONS IN FLAMES
K9 1964	R	2	9.6 (0.7)			300	DISCHARGE FLOW SYST OH FROM H+NO2 (OH) BY U.V. ABSORPT	X	TEMP APPROXIMATE
K9 1964	R	2	13.8	0.	5.9			R	SUGGESTED VALUE
K17 1958	R	2	12.6	1.0	10.0			R	SELECTED
K38 1968	R	2	13.36	0.	5.2 (0.3)			R	RECOMMENDED
M28 1966	R	2	11.34	0.56	4.4			C	JOHNSTON-PARR CALC
N3 1964	R	2	12.5	0.5	6.0			R	SUGGESTED
R2 1966	R	2	13.6	0.	5.7	1400-2500	SHOCKED H2/O2/AR MIX	X	BEST FIT
S1 1967	R	2	13.58	0.	5.49	300-2500		R	RECOMMENDED VALUE BASED ON D5, R2
S4 1965	R	2	14.170	0.	6.430	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	SELECTED
S32 1972	R	2	9.63 (0.06)			298	PULSED VACUUM PHOTOL OF H2O FOR OH (OH) BY RES FLUORESC	X	
S33 1972	R	2	13.591	0.	5.150	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	R	2	11.8	0.5	5.			R	SELECTED (REF D5)
W1 1968	R	2	13.36 (0.7)	0.	5.2	300-1500		R	EVALUATION
W10 1964	R	2	9.76 (0.18)			300	EFFECT OF OH ON (H) BY ESR	X	UNCERTAINTY IN DIFFUSION COEFF
W31 1972	R	2	13.58 (0.3)	0.	5.2	300-2000		R	EVALUATION BASED ON CO+OH=CO2+H
W32 1973	R	2	9.66			298	FAST FLOW REACTOR ESR DETECTOR OH BY NO2 + H	X	DATA EXHIBITS CURVATURE ON ARRHENIUS PLOT
	R	2	10.03			352		X	
	R	2	10.29			403		X	
	R	2	10.91			518		X	
	R	2	11.34			628		X	
	R	2	11.60			745		X	
W44 1973	R	2	13.34	0.	5.15			R	BASED ON B50

242. H + N + M = HN + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B91 1973	F	3	16.17 (0.29)			298	QUARTZ FLOW REACTOR (N) BY EPR, NO TITR (H) BY EPR	X	N BY MICROWAVE DISCH H BY HEATED FILAMENT
H2 1967	F	3	11.68			298		R	SURVEY M = ANY UPPER LIMIT
T1 1967	F	3	16.5	-0.5	0.			C	ORDER MAGNITUDE EST

243. H + NO = HN + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B97 1973	R	2	11.8	0.5	0.			C	ESTIMATE TRANS STATE CORELAT
T1 1967	R	2	11.7	0.5	5.			C	ESTIMATE BASED ON D8

244. H + ND + M = HND + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
A21 1972	F	3	16.36 (0.02)			300	STATIC REACTOR HG PHOTOSENS DISSN H (H) BY LYMAN ALPHA	X	M = H2 ROOM TEMPERATURE DISCUSS ENERGY TRANS
	F	3	16.29 (0.02)			300		X	M = KR
	F	3	16.19 (0.01)			300		X	M = HE
	F	3	16.15 (0.01)			300		X	M = AR
	F	3	15.88 (0.02)			300		X	M = NE
B90 1973	F	3	15.73 (0.15)	0.	-0.6 (0.2)	230-700		R	EVALUATION VALUE FROM REF K9
C4 1961	F	3	15.68			294	H2 DISCHARGE	X	M = H2
C20 1962	F	3	15.97	0.	-0.6 (0.2)	231-704	DISCHARGE FLOW SYST	X	M = H2
C20 1962	F	3	16.310 (0.041)			231		X	M = H2
	F	3	16.161 (0.056)			265		X	M = H2
	F	3	16.170 (0.042)			294		X	M = H2
	F	3	16.173 (0.042)			340		X	M = H2
	F	3	16.068 (0.052)			433		X	M = H2
	F	3	15.88 (0.05)			704		X	M = H2
	F	3	15.94 (0.07)			293		X	M = AR
	F	3	15.86 (0.06)			293		X	M = NE
	F	3	15.82 (0.06)			293		X	M = HE
G20 1974	F	3	15.88 (0.2)	0.	-0.6	230-700		R	M = H2 PREFERRED VALUE EVALUATION
G21 1973	F	3	15.74 (0.2)	0.	-0.6	230-700		R	M = H2 PREFERRED VALUE RATE OF REF K9
H2 1967	F	3	13.0			298		R	SURVEY M = H2 E APPROX ZERO
H10 1967	F	3	16.045 (0.055)			298	DISCH-FLOW SYST	X	M = AR
	F	3	16.316 (0.036)			298		X	M = H2
	F	3	16.354 (0.042)			298		X	M = CO2
	F	3	16.389 (0.072)			298		X	M = N2O
	F	3	16.834 (0.071)			298		X	M = H2O
K9 1964	F	3	15.74	0.	-0.6 (0.2)	231-704		R	BASED ON REF C4
N6 1964	F	3	15.6	0.	-0.6			R	SUGGESTED

244. H + NO + M = HNO + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
S11 1963	F	3	16.04			298	DISCHARGE FLOW SYST	X	M = H2
T1 1967	F	3	17.0	-0.5	0.7			R	BASED ON EXPTL DATA REFS S11 + C4
B90 1973	R	2						R	NO RECOMMENDATION NO EXPERIMENTAL DATA
G20 1974	R	2	16.5 (0.2)	0.	48.7	230-700		R	M = H2 NO DATA BASED ON REVERSE
G21 1973	R	2	16.5 (0.2)	0.	48.7	230-700		R	M = H2 FROM REVERSE NO XPTL DATA

245. H + NO → HO + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B67 1971	R	2	13.45	0.	0.	1800-3000		R	BASED ON RATIO OF C8 AND K(H+OH=O2+H) FROM S29
B90 1973	R	2						R	NO RECOMMENDATION PREFER DATA OF C8
B97 1973	R	2	11.8	0.5	0.			C	ESTIMATE TRANS STATE CORELAT CORRECTED C
C1 1967	R	2	11.72 (2.0)	0.5	5.627			C	ORDER MAGNITUDE EST
C8 1968	R	2	13.61 (0.04)			320	N2 DISCH-FLOW SYST METHOD AS IN REF C15	X	RELATIVE TO HO+O=H+O2 USED VALUE OF C3
G20 1974	R	2	13.50 (0.3)			300		R	PREFERRED VALUE EVALUATION
G21 1973	R	2	13.50 (0.3)			300		R	PREFERRED VALUE BASED ON REF C8 TEMP DEP PROBLY SMALL
T1 1967	R	2	11.7	0.5	5.			C	ORDER MAGNITUDE EST
W31 1972	R	2	13.54 (0.5)			320		R	RECOMMENDED

246. H + NO2 → HN + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

247. H + NO2 → HNO + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	2	10.7	0.5	3.			C	ORDER MAGNITUDE EST

248. H + NO2 = HO + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
A2 1962	F	2	13.74			633	H2/O2 IGNITION	X	MEAS RELATIVE TO H+O2+H2 = HO2+H2 BASED ON REF V1
B90 1973	F	2	14.55 (0.25)	0.	1.5 (1.0)	298-630		R	EVALUATION
F7 1965	F	2	14.48			300		R	SELECTED (REF P2)
G20 1974	F	2	14.54 (0.1)	0.	1.5	298-633		R	PREFERRED VALUE BASED ON REF H38
G21 1973	F	2	14.54 (0.2)	0.	1.5	298-633		R	PREFERRED VALUE EVALUATION
H2 1967	F	2	13.46			298		R	SURVEY E APPROX ZERO
H31 1972	F	2	13.46 (0.10)			298		R	PREFERRED VALUE MAX E=2 KCAL/MOLE
K45 1970	F	2	14.73	0.	1.74	300-630		R	SUGGESTED
N6 1964	F	2	12.1	0.5	0.			R	SUGGESTED
P2 1962	F	2	13.46 (0.04)			300	H2 DISCHARGE	X	
R1 1961	F	2	13.5	0.	0.	500-540	H2/CL2/NO2 THERMAL	X	
S1 1967	F	2	14.86	0.	1.93	298-633		R	RECOMMENDED VALUE BASED ON REFS P2, A2
S5 1962	F	2	13.46			298	H2 DISCHARGE	X	ROOM TEMPERATURE
T1 1967	F	2	11.7	0.5	5.			C	ORDER MAGNITUDE EST
B90 1973	R	2						R	NO RECOMMENDATION NO VALID DATA
G20 1974	R	2	12.50 (0.3)	0.	30.0	298-633		R	PREFERRED VALUE FROM REVERSE
G21 1973	R	2	12.23 (0.3)	0.	30.0	298-633		R	PREFERRED VALUE FROM REVERSE NO XPTL DATA

249. H + NO2 = HO2 + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

250. H + N2 = HN + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
897 1973	R	2	11.8	0.5	0.			C	ESTIMATE TRANS STATE CORELAT
T1 1967	R	2	11.7	0.5	2.			C	ESTIMATED BASED ON REF D8

251. H + N2O = HN + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.0	0.5	30.			C	ORDER MAGNITUDE EST

252. H + N2O = HNO + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	2	10.7	0.5	3.			C	ORDER MAGNITUDE EST

253. H + N2O = HO + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B90 1973	F	2	13.88 (0.15)	0.	15.1 (1.0)	700-2500		R	EVALUATION
B92 1973	F	2	9.41 (0.15)			773	STATIC REACTOR H2/O2/HE/N2O MIX (N2) BY CHROMATOG	X	REL. TO H+O2=HO+O K/K(REF)=0.64 (0.07)
D1 1965	F	2	10.6 (0.3)			900	H2/N2O/O2 FLAME	X	
D1 1965	F	2	13.7 (0.4)	0.	13. (1.5)	423-1760		R	EVALUATION
D2 1965	F	2	10.63			900	H2/N2O/O2 FLAME	X	
	F	2	11.46			1357	H2/N2O/O2 FLAME	X	
F2 1959	F	2	14.62	0.	16.3 (2.0)	1260-1780	H2/N2O/O2 FLAME	X	
F6 1964	F	2	14.5	0.	16.			R	SUGGESTED VALUE FLAME TEMPERATURES
G21 1973	F	2	13.88 (0.2)	0.	15.1	700-2500		R	PREFERRED VALUE EVALUATION
H19 1969	F	2	13.60	0.	12.0	1700-4000	SHOCK TUBE N2O/H2/AR OH AND NO BY UV ABS	X	STRONG DEPENDENCE ON RATES ASSUMED FOR OTHER REACTIONS
K45 1970	F	2	13.95 (0.21)	0.	13.53 (0.73)	423-1800		R	SUGGESTED
S1 1967	F	2	13.47	0.	10.77	400-2000		R	RECOMMENDED VALUE AVERAGE OF D1,D2,F2
T1 1967	F	2	14.5	0.	16.			R	SELECTED (REF F6)
B90 1973	R	2	12.4	0.	78.	1000-2000		R	FROM REVERSE
G20 1974	R	2	12.51 (0.2)	0.	80.3	700-2500		R	PREFERRED VALUE EVALUATION FROM REVERSE
G21 1973	R	2	12.18 (0.2)	0.	77.7	700-2500		R	PREFERRED VALUE FROM REVERSE NO XPTL DATA

254. H + O + M = HO + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B85 1973	F	3	18.0	-1.	0.	200-4000		C	EMPIRICAL CORELATION
B88 1972	F	3						R	NO RECOMMENDATION NO PRECISE DATA
C1 1967	F	3	18.30 (0.70)	-1.0	0.			C	ESTIMATED BY ANALOGY WITH H + H + M
J1 1967	F	3	18.6 (1.0)	-1.0	0.	1000-3500		C	ESTIMATED BY ANALOGY
J3 1967	F	3	16.63	0.	-2.78	1330-1560	STIRRED-FLOW REACTOR H2/ O2 RXN	X	BEST FIT BETWEEN XPTL AND COMPT TEMPS
K3 1964	F	3	14.8	0.	0.			C	ESTIMATED BY ANALOGY AVG OF H + H + M AND O + O + M
P9 1967	F	3	18.6	-1.0	0.			R	ESTIMATED FROM W21
S30 1972	F	3	15.9 (1.)	0.	0.	1000-3000		R	EVALUATION APPROX VALUE LIMITED DATA
T1 1967	F	3	18.3	-1.0	0.			C	M = ANY
	F	3	18.7	-0.5	0.			C	ORDER MAGNITUDE EST M = H2O
	F	3	17.9	-0.5	0.			C	ORDER MAGNITUDE EST M = H2
	F	3	17.54	-0.5	0.			C	ORDER MAGNITUDE EST M = H
	F	3	18.7	-0.5	0.			C	ORDER MAGNITUDE EST M = HO
B11 1965	R	2	21.0	-1.5	101.0			R	SELECTED (REF D7) M = XE
B85 1973	R	2	21.88	-2.	105.4	200-4000		C	FROM REVERSE
B88 1972	R	2						R	NO RECOMMENDATION NO EXPERIMENTAL DATA
J3 1967	R	2	16.46	0.	96.37	1330-1560	STIRRED-FLOW REACTOR H2/ O2 RXN	X	BEST FIT BETWEEN XPTL AND COMPT TEMPS
K3 1964	R	2	14.15	0.21	101.3			C	FROM REVERSE M = ANY REVERSE ESTIMATED

255. H + O2 = HO + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
A1 1964	F	2	13.66	0.	15.6 (0.6)	843-933	FIRST IGN. LIMIT CH4/O2/H2 MIXTURES	X	
A3 1961	F	2	13.894	0.	15.9 (0.8)	843-933	FIRST IGN. LIMIT CO/O2/H2 MIX	X	RESULT AVG VALUE THREE DETERMINATIONS
A4 1962	F	2	13.59 (0.16)	0.	15.0 (0.6)	863-933	C2H6/CO/O2 IGNITION FIRST EXPL LIMIT	X	
A5 1965	F	2	13.920 (0.053)	0.	16.0 (0.6)	840-980	IGNITION STUDY	X	
A7 1965	F	2	12.0	0.	16.9	1400-2500	SHOCKED H2/O2/AR MIX USED INDUCTION TIMES	X	CONSTRAINED RATES TO AGREE WITH LOW TEMP RESULTS
A17 1967	F	2	14.06	0.	16.5	783-843	IGNITION LIMITS STATIC VACUUM APP MGO COATED VESSEL	X	
B1 1962	F	2	9.78			813	H2/O2 IGNITION CH2O INHIBITED	X	REFERENCED TO K(CH2O+H)
B1 1962	F	2	14.52 (0.63)	0.	17.6 (3.0)	813-1500		R	COMBINE OWN RESULT AT 813K WITH HIGH TEMP RESULTS
B6 1956	F	2	9.43			793	1ST EXPLOSION LIMIT H2/O2 RXN KCL COATED VESSEL	X	
B7 1957	F	2	8.82			793	H2/O2 IGNITION	X	
B8 1964	F	2	14.312 (0.28)	0.	16.49 (0.70)	300-2000		R	EVALUATION BASED ON SHOCK TUBE,FLAME, IGN, FLOW STUDIES
B11 1965	F	2	15.08 (0.80)	0.	17.8 (1.0)	300-600		R	SELECTED (REF K4)
	F	2	14.86 (0.80)	0.	16.9 (1.0)	1500-1700		R	SELECTED (REF K4)
B12 1963	F	2	14.33 (0.3)	0.	16.6 (0.8)	300-2000		R	EVALUATION
B13 1965	F	2	14.43 (0.19)	0.	16.6 (0.8)	300-2000		R	EVALUATION VALUE OF REF B12
B15 1966	F	2	10.04			900	HYDROGEN-OXYGEN FLAME + EPR SPECTRUM	X	
	F	2	10.23			943		X	
	F	2	10.41			993		X	
	F	2	10.61			1052		X	
B15 1966	F	2	14.01 (0.05)	0.	16.6 (1.2)	900-1052		X	
B16 1968	F	2	14.3	0.	16.7	1400-3000	SHOCK TUBE STUDY H2/O2/AR SYSTEM	X	BEST FIT OF ANALYT AND XPTL DENSITY PROFILES
B51 1969	F	2	14.35 (0.3)	0.	16.8 (0.5)	300-3000		R	EVALUATION E + ENDOTHERMICITY
B71 1970	F	2	14.097 (0.094)	0.	16.3 (1.1)	1165-1420	SHOCK TUBE STUDY H2/CO/CO2/O2/AR MIX (O) BY CO+O EMISSION	X	
B80 1971	F	2	14.097 (0.094)	0.	16.3 (1.1)	1150-1400	SHOCK TUBE STUDY H2/CO/CO2/O2/AR MIX CO FLAME BAND EMISS	X	
	F	2	11.057			1166		X	
	F	2	11.049			1176		X	
	F	2	11.049			1180		X	

255. H + O2 + MO + O

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
	F	2	11.152			1216		X	
	F	2	11.170			1236		X	
	F	2	11.272			1246		X	
	F	2	11.412			1286		X	
	F	2	11.398			1292		X	
	F	2	11.377			1310		X	
	F	2	11.439			1344		X	
	F	2	11.509			1369		X	
	F	2	11.496			1393		X	
	F	2	11.548			1409		X	
883 1969	F	2	14.30	0.	16.653	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	BEST FIT TO EXPT
888 1972	F	2	14.35 (0.10)	0.	16.8 (0.5)	700-2500		R	EVALUATION
893 1973	F	2	14.34 (0.11)	0.	16.8	700-2500		R	CRITICAL EVALUATION ACCURATE OVER QUOTED TEMP RANGE
D2 1965	F	2	10.20			915	FLAME STUDY H2/O2 (H) BY D2O EXCHANGE (O2) BY MASS SPEC	X	ASSUMED O2 CONSUMED BY O2+H AND O2+H+M
F5 1971	F	2	14.36	0.	16.8	650-1000	LOW PRESS FLAT FLAME FUEL-RICH H2/O2	X	H2, O2, H2O, H, OH BY MASS SPEC, GC, UV ABSORPT, ESR SPEC
F2 1959	F	2	11.18			1100	FLAME STUDY (H) BY D2O EXCHANGE ALSO MASS SPEC PROBE	X	FOLLOWED O2 ATTRIB TO O2 + H
F4 1958	F	2	11.46			1285	FLAME STUDY (H) BY D2O EXCHANGE ALSO MASS SPEC PROBE	X	ASSUMED O2+H MAIN RX
	F	2	11.58			1324		X	
	F	2	11.65			1340		X	
	F	2	11.85			1420		X	
	F	2	12.00			1500		X	
	F	2	14.9	0.	20.0 (2.0)	1285-1500	H2/O2 FLAME	X	
F5 1963	F	2	14.8	0.	18.			R	SELECTED (REF 58)
F6 1964	F	2	14.6	0.	18.0			R	SUGGESTED VALUE FLAME TEMPERATURES
F7 1965	F	2	14.34	0.	16.5	300-1600		R	EVALUATION
G2 1965	F	2	13.69	0.	17.0	1272-2196	C2H2/O2 SHOCK TUBE	X	
G3 1967	F	2	13.69 (0.04)	0.	14.45	1290-1667	SHOCK TUBE/H2/O2 RX CO + O CONTINUUM FOLLOWED	X	ACCURACY QUOTED AS PLUS OR MINUS 10 PCT

255. H + O2 = HO + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
G3 1967	F	2	14.037	0.	16.06		SHOCK TUBE H2/O2 RX CO + O CONTINUUM FOLLOWED	R	FITTED OWN HIGH TEMP RESULTS AND LOW TEMP RESULTS OF OTHERS
G4 1967	F	2	13.980	0.	14.7 (0.3)	975-2060	SHOCK TUBE STUDY H2/O2/CO/AR MIXTURES O BY CO + COMB	X	ACCURACY QUOTED AS PLUS OR MINUS 20 PCT
G20 1974	F	2	14.35 (0.1)	0.	16.8	700-2500		R	PREFERRED VALUE BASED ON REF 888
H1 1964	F	2	14.6	0.	18.7	1200-1800	INDUCTION TIMES H2/O2 SYST	X	ASSUMED RATE IN CONJUNCTION WITH COMPLEX MECHANISM
H2 1967	F	2	14.3	0.	17.	298-1473		R	SELECTED VALUE
J1 1967	F	2	14.3 (0.2)	0.	16.5	1000-3500		R	EVALUATION
J3 1967	F	2	14.68	0.	17.9	1330-1560	STIRRED FLOW REACTOR H2/O2/RXN	X	BEST FIT BETWEEN XPTL AND COMPT TEMPS
J10 1970	F	2	13.99	0.	15.02	1200-1800	INCIDENT SHOCK H2/O2/AR MIX (OH) BY UV ABSORPT	X	
K3 1964	F	2	14.38	0.	16.75	300-1650		R	RECOMMENDED VALUE
K4 1963	F	2	15.08 (0.8)	0.	17.8 (1.0)	300-600		R	FROM REVERSE
	F	2	14.86 (0.8)	0.	16.9 (1.0)	1500-1700		R	FROM REVERSE
	F	2	14.28	0.13	17.1	300-2500		R	FROM REVERSE ALTERNATE EXPRESSION
K5 1959	F	2	13.72	0.	14.9			R	REVIEW OF RADICAL REACTIONS IN FLAMES
K6 1958	F	2	13.75	0.	15.1	733-873	1ST EXPLOSION LIMIT H2/O2 RXN	X	
K8 1968	F	2	14.228 (0.093)	0.	16.2 (0.4)	800-1000	LOWER EXPLOSION LIMIT OF H2/O2 MIX	X	ACCURACY PLUS OR MINUS 20 PCT ALSO IN REF K7
K9 1964	F	2	14.78	0.	16.8	200-600		R	SUGGESTED VALUES ASSUME REVERSE E EQUALS ZERO
	F	2	14.98	0.	15.9	1500-1700		R	
K32 1958	F	2	13.75	0.	15.1	733-873	H2/O2 IGNITION	X	
K38 1968	F	2	14.34	0.	16.5	295-1575		R	RECOMMENDED (REF F7)
K45 1970	F	2	14.19 (0.07)	0.	16.73 (0.25)	310-2060		R	RECOMMENDED
L2 1963	F	2	14.82 (0.16)	0.	17.4 (0.7)	2126-3045	FLAME STUDY	X	
M4 1968	F	2	12.78	0.5	17.75	1700-2700	SHOCK TUBE STUDY H2/AR PLUS O2 MIX	X	K(O2 PLUS H) FOUND TO BE RATE DETERMNG
N3 1964	F	2	12.3	0.5	0.			R	SUGGESTED
P3 1968	F	2	14.08	0.	16.6	300-1650	STUDY OF H2/O2 RXN	X	
P4 1968	F	2	14.24	0.	16.6	853-953	STUDY OF H2/O2 RXN	X	PROPANE ADDED
	F	2	14.10	0.	16.6	853-953		X	BUTANE ADDED
R2 1966	F	2	14.9	0.	17.6	1400-2500	SHOCKED H2/O2/AR MIX	X	BEST FIT

255. H + O2 = HO + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
S1 1967	F	2	14.402	0.	16.79	300-2500		R	RECOMMENDED VALUE LEAST SQUARE FIT
S4 1965	F	2	15.000	0.	17.75	960-1080	SHOCK TUBE/H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	SELECTED
S8 1958	F	2	12.15			1650	SHOCK TUBE STUDY H2/O2/AR MIX	X	BASED ON K(H2+O2) + K(H2+OH) FROM D7
S8 1958	F	2	14.48	0.	17.5 (3.0)	800-1650		R	COMBINED OWN RESULTS WITH LOW T RESULTS
S14 1960	F	2	14.5	0.	17.5	1000-2600	SHOCK TUBE H2/O2/AR (OH) BY U.V. ABSORPT	X	BEST FIT FOR (OH)
S23 1969	F	2	13.61	0.	12.3 (1.0)	1000-2500	REFLECTED SHOCK H2/O2/CO/AR IGNITION CO-O RADIATION	X	
S33 1972	F	2	14.695	0.	16.80	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	
S37 1973	F	2	17.086	-0.91	16.63	1250-2500	REFLECTED SHOCK IGN H2/CO/O2/AR MIX END-ON CHEMILUMINESC	X	SUGGEST PREVIOUS EXPRESSIONS TOO LOW B = -0.907
T1 1967	F	2	14.3	0.	17.			R	SELECTED (REF K3)
T2 1965	F	2	14.3	0.	16.6	300-1500		R	RECOMMENDED VALUE BASED ON B12
V1 1961	F	2	13.98	0.	16.2 (0.2)			R	SUGGESTED VALUE
W2 1965	F	2	14.34	0.	16.50	293-1673		R	CRITICAL SURVEY
W44 1973	F	2	14.350	0.	16.8			R	BASED ON B51
B13 1965	R	2	13.21 (0.24)	0.	0.2 (0.8)	300-3000		R	FROM REVERSE RX
B51 1969	R	2	13.11 (0.3)	0.	0. (0.5)	300-1500		R	FROM REVERSE ASSUME E = 0
B61 1970	R	2	13.41 (0.11)			298	FAST FLOW SYSTEM OH FROM H + NO2 OH, NO, O, H BY ESR	X	ROOM TEMPERATURE
B83 1969	R	2	12.217	0.27	0.	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	FROM REVERSE
B88 1972	R	2	13.36 (0.16)			300		R	BASED ON EXPTL DATA
B97 1973	R	2	11.8	0.5	0.			C	ESTIMATE TRANS STATE CORELAT
C1 1967	R	2	11.51 (0.7)	0.47	0.1			R	SELECTED
C2 1963	R	2	13.5 (0.1)			265+293	DISCHARGE FLOW SYST OH FROM H+NO2 (H) (O) BY EMISSION	X	STEADY STATE (O) ASSUMED
C3 1963	R	2	13.5 (0.15)			293	DISCHARGE FLOW SYST OH FROM H + NO2 (H) (O) BY EMISSION	X	
D4 1962	R	2	12.9 (0.2)			310	DISCHARGE FLOW SYST OH FROM H+NO2 O FROM N+NO	X	DECAY (OH) BY U.V. IN PRESENCE AND ABSENCE OF O ATOMS
D25 1970	R	2	13.11	0.	0.	300-1500		R	EVALUATION FROM REVERSE
F5 1963	R	2	13.23	0.	1.4			R	SUGGESTED VALUE FROM K(O2+H) AND FROM REVERSE RXN
G20 1974	R	2	13.40 (0.3)	0.	0.	300-2000		R	PREFERRED VALUE BASED ON REF W31
H2 1967	R	2	13.18			298		R	SURVEY E APPROX ZERO

255. H + O2 = HO + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
J3 1967	R	2	13.525	0.	1.838	1330-1560	STIRRED-FLOW REACTOR H2/O2 RXN	X	BEST FIT BETWEEN XPTL AND COMPT TEMPS
K3 1964	R	2	11.51	0.47	0.1	300-2000		R	RECOMMENDED VALUE FROM K(O2+H) AND FROM REVERSE RXN
K4 1963	R	2	13.04 (0.13)			310	DISCHARGE FLOW SYST OH FROM H+NO2 (OH) BY U.V. ABSORPT	X	
K4 1963	R	2	13.75 (0.3)	0.	1.0 (0.5)	300-2000		R	EVALUATION ASSUMED E=1 KCAL
	R	2	11.80	0.5	0.			R	EVALUATION ALTERNATE EXPRESSION
K9 1964	R	2	13.5 (0.2)			300	DISCHARGE FLOW SYST OH FROM H+NO2 O FROM N+NO	X	(OH) BY U.V. ABSORP
L5 1964	R	2	13.4			300		R	SUGGESTED BASED ON K4,C3
S1 1967	R	2	13.094	0.	0.	300-900		R	RECOMMENDED VALUE FROM REVERSE RXN
S4 1965	R	2	13.790	0.	1.190	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	SELECTED
S33 1972	R	2	13.466	0.	0.	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	
W3 1965	R	2	12.5			300	DISCHARGE FLOW SYS) OH FROM H+NO2 H AND O BY ESR	X	VALUE APPROX INDICATE K MAY BE LOWER THAN PREV EST
W28 1970	R	2	13.30 (0.06)	0.	0.	228-340	STIRRED REACTOR ESR DETECTION	X	
W31 1972	R	2	13.40 (0.3)	0.	0.	300-2000		R	RECOMMENDED

256. H + O2 + M = HO2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
A21 1972	F	3	15.64 (0.03)			300	STATIC REACTOR HG PHOTOSENS DISSN H (H) BY LYMAN ALPHA	X	M = H2 ROOM TEMPERATURE DISCUSS ENERGY TRANS
	F	3	15.60 (0.04)			300		X	M = KR
	F	3	15.43 (0.02)			300		X	M = HE
	F	3	15.34 (0.03)			300		X	M = AR
	F	3	14.74 (0.08)			300		X	M = NE
B13 1965	F	3	16.05 (0.15)	0.	-1.6 (0.7)	300-3000		R	EVALUATION (9 REFS) M = H2O
	F	3	15.24 (0.15)	0.	-1.6 (0.7)	300-3000		R	EVALUATION M = H2, 3RD BODY EFF RELATIVE TO M = H2O
	F	3	14.79 (0.15)	0.	-1.6 (0.7)	300-3000		R	EVALUATION M = N2, 3RD BODY EFF RELATIVE TO M = H2O
	F	3	15.12 (0.15)	0.	-0.6 (0.7)	300-3000		R	EVALUATION M = O2, 3RD BODY EFF RELATIVE TO M = H2O
B16 1968	F	3	18.51	-1.0	0.	1400-3000	SHOCK TUBE STUDY H2/O2/AR MIXTURES DENSITY PROFILES	X	M = AR
B21 1957	F	3	17.80	0.	0.	293-319	HG PHOTO H2/O2 RX	X	M = H2
B22 1965	F	3	14.56	0.	0.	600-800	FLAME STUDY	X	BEST FIT EXPTL DATA OPTIMIZE H +O2, H2 + O, H + O2 + M
B41 1970	F	3	15.48 (0.16)	0.	0.	1435-1868	SHOCK INITIATED COMBUST. DILUTE H2/O2/AR MIX	X	M = AR
B51 1969	F	3	15.20 (0.3)	0.	-1.0 (1.0)	300-2000		R	EVALUATION INERT THIRD BODY
B58 1965	F	3	15.20	0.	-3.5	1000-1130	LOW PRESS FLAT FLAME	X	M = H2
	F	3	15.08	0.	-2.5	1000-1130	LOW PRESS FLAT FLAME	X	M = O2
	F	3	16.02	0.	-3.5	1000-1130	LOW PRESS FLAT FLAME	X	M = H2O
	F	3	14.86	0.	-3.5	1000-1130	LOW PRESS FLAT FLAME	X	M = N2
B83 1969	F	3	18.51	-1.0	0.	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	M = AR BEST FIT TO EXPT
B88 1972	F	3	15.70 (0.10)	0.	1.0 (0.5)	300-2000		R	EVALUATION M = H2
	F	3	16.51 (0.10)	0.	1.0 (0.5)	300-2000		R	M = H2O
	F	3	15.88 (0.10)	0.	1.0 (0.5)	300-2000		R	M = CO2
	F	3	15.30 (0.10)	0.	1.0 (0.5)	300-2000		R	M = O2
	F	3	15.30 (0.10)	0.	1.0 (0.5)	300-2000		R	M = N2
	F	3	15.18 (0.10)	0.	1.0 (0.5)	300-2000		R	M = AR
	F	3	15.18 (0.10)	0.	1.0 (0.5)	300-2000		R	M = HE
C2 1963	F	3	16.08 (0.10)			293	DISCHARGE FLOW SYST	X	RX SHOWN TO BE THIRD ORDER

256. H + O2 + M = HO2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
C5 1963	F	3	16.10 (0.04)			225	DISCHARGE FLOW SYST	X	M = AR
	F	3	16.16 (0.03)			244		X	M = AR
	F	3	15.90 (0.04)			293		X	M = AR
	F	3	15.88 (0.04)			293		X	M = HE
	F	3	17.28 (0.15)			293		X	M = H2O
C5 1963	F	3	14.67	0.	1.6 (0.7)	250-800		X	M = AR RESULTS COMBINED W/ EXPLOSION LIMIT
D10 1966	F	3	15.9			1528	ATM PRESS FLAME MICROPROBE-MASS SPEC	X	RESULT SENSITIVE TO CALIB ERRORS M = H2O
D19 1969	F	3	16.35 (0.11)			293	MASS SPEC ZONING OF DIFFUSION CLOUD	X	M = HE
	F	3	15.79 (0.11)			293		X	M = H2 ASSUME EFFICIENCY 0.36 REL TO HE
F13 1965	F	3	17.0 (0.1)	0.	0.	1000-1350	FLAME STUDY H2 LEAN	X	ASSUMED H REMOVED BY O2 + H + M M = H2O
	F	3	16.9			750	FLAME STUDY H2 RICH	X	
G4 1967	F	3	15.52 (0.11)			1100	SHOCK TUBE STUDY H2/O2/CO/AR MIXTURES O BY CO + O RECOMB	X	M = AR
G4 1967	F	3	15.301	0.	-0.87 (0.07)			R	FITTED OWN RESULTS WITH RESULTS OF OTHERS
G5 1965	F	3	15.152 (0.068)			1500	SHOCK TUBESTUDY LEAN H2/O2/AR MIX OH BY UV ABSORPTION	X	STUDIED 1150 - 1850K MEAN VALUE AT 1500K M = AR
G5 1965	F	3	16.63			1500	SHOCK TUBESTUDY LEAN H2/O2/AR MIX OH BY UV ABSORPTION	X	OBTAINED FROM EST OF K(H2O)/K(AR)
G5 1965	F	3	14.93	0.	-1.28 (0.09)	225-1850		R	FITTED OWN HIGH TEMP RESULTS AND LOW TEMP RESULTS OF OTHERS
G6 1969	F	3	15.34 (0.06)			1500-	SHOCK TUBESTUDY LEAN H2/O2/H2O/AR OH BY UV ABSORPTION	X	M = AR
	F	3	15.32			1500-		X	M = N2
	F	3	16.73 (0.04)			1500-		X	M = H2O
G6 1969	F	3	15.63			1500		X	M = O2 UPPER LIMIT
G20 1974	F	3	15.39 (0.07)	0.	-0.58	203-404		R	M = AR, HE PREFERRED VALUE EVALUATION
	F	3	15.88 (0.07)	0.	-0.58	203-404		R	M = N2, O2
	F	3	16.78 (0.07)	0.	-0.58	203-404		R	M = H2O
H2 1967	F	3	16.6	0.	0.	753-843		R	SELECTED VALUES M = H2O
	F	3	15.8	0.	0.	723-923		R	M = H2
	F	3	15.3	0.	0.	633-843		R	M = N2, O2
	F	3	20.88	-2.	0.	253-798		R	M = AR

256. H + O2 + M = HO2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
H6 1957	F	3	15.71	0.	-4.0	293-793		R	SUGGESTED VALUE
J1 1967	F	3	19.0 (0.7)	-1.0	0.	1000-3500		R	EVALUATION M = ANY
K3 1964	F	3	16.5	0.	0.			R	ESTIMATED BASED ON XPTL DATA
K45 1970	F	3	19.09 (0.51)	-1.24	0.	293-1500		R	SUGGESTED M = AR
	F	3	15.50 (0.10)	0.	-1.89 (0.21)	293-813		R	SUGGESTED M = H2
	F	3	22.03 (0.47)	-2.08	0.	293-813		R	SUGGESTED M = H2 ALTERNATE EXPRESSION
K46 1972	F	3	16.950			298	FLASH PHOTOLYSIS-RESONANCE FLUORESC	X	M = CH4
	F	3	15.755			298		X	M = AR
	F	3	15.755			298		X	M = HE
	F	3	15.383 (0.07)	0.	-0.473 (0.092)	203-404		X	M = HE
	F	3	16.286			298		X	M = N2
	F	3	16.499			226		X	M = N2
L5 1964	F	3	16.130			293	DISCHARGE FLOW SYST H DECAY CALORIMETRIC PROBE	X	M = AR ASSUMED EFFIC. OF N2 AND O2 ARE TWICE AR
N3 1964	F	3	15.08	0.	-1.6			R	SUGGESTED
P13 1973	F	3	16.049			1900	CH4/O2 FLAME 40 TORR MOLEC BEAM SAMPLING	X	BASED ON RADICAL POOL DECAY
S1 1967	F	3	15.040	0.	-1.22	225-1500		R	M = AR LEAST SQUARES FIT
	F	3	19.175	-1.29	0.	225-1500		R	M = AR LEAST SQUARES FIT ALTERNATE EXPRESSION
S4 1965	F	3	15.916	0.	0.	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	M = AR IMPORT AT LOW TEMP BEST FIT
S33 1972	F	3	14.982	0.	-1.00	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	M = AR 23 RX MECH LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	F	3	15.0	-0.5	0.			C	ORDER MAGNITUDE EST
T2 1965	F	3	15.3	0.	-2.0			R	RECOMMENDED VALUE BASED ON ROOM TEMP DISCHARGE FLOW EXPTS
T2 1965	F	3	21.7	-2.0	0.			R	ALTERNATE EXPRESSION
V1 1961	F	3	15.63	0.	0.			R	SUGGESTED VALUE DEPENDS ON VALUE FOR K(O2+H)
V2 1939	F	3	12.91			297	HG PHOTO H2/O2 RX	X	FROM DATA OF REF F26 M = H2
W44 1973	F	3	16.	0.	0.			R	BASED ON XPTL DATA LARGE SCATTER
B24 1965	R	2	22.722	-2.0	50.0			R	SELECTED VALUE BASED ON REF S12
B51 1969	R	2	15.38 (0.3)	0.	45.9 (1.0)	300-2000		R	FROM REVERSE INERT THIRD BODY

256. H + O2 + M = HO2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B83 1969	R	2	18.605	-0.93	45.920	1400-3000	SHOCK TUBE STUDY H2/O2/N2/CO/AR MIX OPT. INTERFEROMETRY	X	M = AR FROM REVERSE
B88 1972	R	2	15.32 (0.10)	0.	45.9 (0.5)	300-2000		R	RECOMMENDED FROM REV NO DIRECT DATA M = HE, AR
K3 1964	R	2	16.0	0.21	45.92			R	FROM REVERSE RX
L11 1971	R	2	15.38 (0.5)	0.	45.0	300-1000	EFFIC-H2=1.,H2O=6.5, CO2=1.5,O2=0.4, N2=0.4,AR=0.2,HE=0.2	R	M = H2 FROM REVERSE
L16 1974	R	2	15.32 (0.18)	0.	46.0	300-2000		R	M = AR, HE RECOMMENDED
S4 1965	R	2	20.004	-1.	50.00	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	M = AR IMPORT AT LOW TEMP BEST FIT
S33 1972	R	2	15.158	0.	45.90	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	M = AR 23 RX MECH LIT RATES VARIED WITHIN ERROR LIMITS

257. HN + HN → H2 + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
DB 1963	F	2	14.			2000	SHOCK TUL STUDY DECOMP N2H4	X	ORDER MAGNITUDE EST

258. HN + HNO → H2 + N2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

259. HN + HNO → H2O + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

260. HN + HO → H2 + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

261. HN + HO → H2O + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
M28 1966	F	2	12.20	0.56	1.5			C	JOHNSTON-PARR CALC
T1 1967	F	2	11.7	0.5	2.			C	ORDER MAGNITUDE EST

262. HN + HO2 → HNO + HO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

263. HN + HO2 → H2 + NO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

264. HN + HO2 → H2O + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

265. HN + H2O = HNO + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

266. HN + NO = HNO + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	2	11.0	0.5	2.			C	ORDER MAGNITUDE EST

267. HN + NO = HO + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

268. HN + NO2 = HNO + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.3	0.5	5.			C	ORDER MAGNITUDE EST

269. HN + NO2 = HO + N2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

270. HN + NO2 = HO2 + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

271. HN + N2O = HNO + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.0	0.5	3.			C	ORDER MAGNITUDE EST

272. HN + O + M = HNO + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	3	16.0	-0.5	0.			C	ORDER MAGNITUDE EST

273. HN + O = HO + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B97 1973	F	2	11.8	0.5	8.			C	ESTIMATE TRANS STATE CORELAT
M5 1968	F	2	12.00	0.5	0.1			C	BOND ENERGY-BOND ORDER
T1 1967	F	2	12.92	0.7	0.1			C	JOHNSTON-PARR CALC
M5 1968	R	2	11.99	0.5	18.3			C	BOND ENERGY-BOND ORDER

274. HN + O2 = HNO + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1957	R	2	11.0	0.5	7.			C	ORDER MAGNITUDE EST

275. HN + O2 = HO + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

276. HN + O2 = HO2 + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
K25 1963	R	2	11.			300	FLOW-DISCHARGE SYST N2/H2O THROUGH DISCH O2 ADDED DOWNSTREAM	X	LOWER LIMIT

277. HNO + M = HO + N + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	R	3	15.0	-0.5	0.			C	ORDER MAGNITUDE EST

278. HNO + HNO = H2O + N2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

279. HNO + HO = H2 + NO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX
IN DATA BANK
AT THIS TIME

280. HNO + HO → H2O + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B46 1964	F	2	13.96 (0.13)	0.	0.	1600-2000	H2/O2/NO FLAME	X	
B90 1973	F	2	13.56 (0.3)			2000		R	APPROXIMATE BASED ON DATA OF H39
G20 1974	F	2	13.6 (0.2)			2000		R	PREFERRED VALUE EVALUATION
G21 1973	F	2	13.6 (0.2)			2000		R	PREFERRED VALUE EVALUATION
H31 1972	F	2	13.96 (0.12)	0.	0.	1600-2000		R	PREFERRED VALUE
H39 1968	F	2	13.56 (0.12)			2000	H2/O2/N2 FLAME NO ADDED	X	HNO ASSUMED EQUILIB W/ H AND NO
N6 1964	F	2	12.5	0.5	2.4			R	SUGGESTED
T1 1967	F	2	11.3	0.5	2.			R	BASED ON XPTL DATA
B90 1973	R	2						R	NO RECOMMENDATION NO DATA
G20 1974	R	2	6.38 (0.2)			2000		R	PREFERRED VALUE FROM REVERSE NO DATA
G21 1973	R	2	6.3 (0.2)			2000		R	PREFERRED VALUE FROM REVERSE

281. HNO + HO2 → H2O + NO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

282. HNO + N → HO + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

283. HNO + NO = HO + N2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
W23 1969	F	2	12.3 (0.3)	0.	26.0 (5.0)	1073-1333		R	EVALUATION REEXAMINATION OF EXISTING H2-NO DATA

284. HNO + NO = HO2 + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

285. HNO + NO2 = HO2 + N2O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

286. HNO + O = HO + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
T1 1967	F	2	11.70	0.5	0.			C	ORDER MAGNITUDE EST

287. HNO + O = HO2 + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

288. HNO + O2 = HO + NO2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

289. HNO + O2 = HO2 + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

290. HO + HO = H2 + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B13 1965	F	2	12.08	0.	26.33	300-3000		R	FROM REVERSE RX
B88 1972	F	2						R	NO EXPERIMENTAL DATA NO RECOMMENDATION
C1 1967	F	2	13.15 (1.4)	-0.02	49.264			R	FROM REVERSE RX B =-0.015
O25 1970	F	2	12.08	0.	26.33	300-3000		R	EVALUATION FROM REVERSE ATTRIBUTE TO REF B13
S4 1965	F	2	12.848	0.	48.60	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	BEST FIT
A7 1965	R	2	11.0	0.	70.0	1400-2500	SHOCKED H2/O2/AR MIX USED INDUCTION TIMES	X	CONSTRAINED RATES TO AGREE WITH LOW TEMPRESULTS
B11 1965	R	2	14.398	0.	67.0			R	SELECTED (REF S12)
B13 1965	R	2	13.62	0.	45.0	300-3000		R	SELECTED
B88 1972	R	2	12.40 (1.0)	0.	38.9	1400-2500		R	VALUE OF REF R2 PROBABLY VALID NO RECOMMENDATION
J8 1971	R	2	13.230 (0.5)	0.	48.15	1200-1800	INCIDENT SHOCK H2/O2/AR MIX (OH) BY UV ABSORPT	X	INDUCTION TIMES AND EXPONENTIAL GROWTH
R2 1966	R	2	12.4	0.	39.0	1400-2500	SHOCKED H2/O2/AR MIX	X	BEST FIT
S4 1965	R	2	14.398	0.	67.00	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	BEST FIT
S34 1973	R	2	13.134	0.	48.15	1300-2500		X	ALTERNATE INIT STEP FOR IGNITION STUDY IN REF S33
T1 1967	R	2	14.0	0.	70.			R	BASED ON REF D7 + F9

291. HO + HO = H2O + O

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
B13 1965	F	2	12.50 (0.17)	0.	0.95 (0.20)	300-3000		R	EVALUATION
B50 1968	F	2	12.76 (0.45)	0.	0.78 (0.5)	300-3000		R	FROM REVERSE CAUTION RECOMMENDED
B61 1970	F	2	11.70 (0.12)			298	FAST FLOW SYSTEM OH FROM H + NO2 OH, NO, O, H BY ESR	X	ROOM TEMPERATURE
B88 1972	F	2	12.80 (0.20)	0.	1.10 (0.40)	300-2000		R	EVALUATION
C1 1967	F	2	13.028 (1.0)	-0.01	0.967	300-3000		R	FROM REVERSE RX B =-0.0134
D4 1962	F	2	11.88 (0.09)			310	DISCHARGE FLOW SYST OH FROM H+NO2 (OH) BY U.V. ABSORPT	X	
D5 1966	F	2	12.190 (0.032)			300	DISCHARGE FLOW SYST OH FROM H+NO2 (OH) BY ESR	X	
D25 1970	F	2	12.760	0.	0.78	300-3000		R	EVALUATION
G20 1974	F	2	12.78 (0.2)	0.	1.1	300-2000		R	PREFERRED VALUE BASED ON REF B88
G22 1973	F	2	13.74 (0.10)	0.	7.0	1200-2500	SHOCK-INIT COMBUST. H2/O2/CO/CO2/AR MIX	X	DISCUSS POSSIBLE NONLINEAR ARRHENIUS
H2 1967	F	2	12.88			298		R	SURVEY E APPROX 1 KCAL/MOLE
J1 1967	F	2	12.8 (0.7)	0.	1.	1000-3500		R	SELECTED (REF K4)
J3 1967	F	2	13.06	0.	1.0	1330-1560	STIRRED-FLOW REACTOR H2/O2 RXN	X	BEST FIT BETWEEN XPTL AND COMPT TEMPS
K3 1964	F	2	12.88	0.	1.0			R	EVALUATION
K4 1963	F	2	11.88 (0.10)			310	DISCHARGE FLOW SYST OH FROM H+NO2 (OH) BY U.V. ABSORPT	X	
	F	2	12.58 (0.3)	0.	1.0 (0.5)	300-2000		R	ASSUMED E=1 KCAL/MOL
K9 1964	F	2	11.93 (0.07)			300	DISCHARGE FLOW SYST OH FROM H+NO2 (OH) BY U.V. ABSORPT	X	TEMP APPROX
K18 1961	F	2	11.5			298	DISCHARGE FLOW SYST OH FROM H+NO2 (OH) BY U.V. ABSORPT	X	PRELIM REPORT OF THIS SYSTEM TEMP APPROX
L5 1964	F	2	12.5			300		R	SUGGESTED BASED ON K4
M28 1966	F	2	11.81	0.55	1.5			C	JOHNSTON-PARR CALC
N3 1964	F	2	12.48	0.5	2.0			R	SUGGESTED
R12 1974	F	2	13.74	0.	6.9	1500-2500	SHOCK TUBE STUDY H2/O2/DILUENT MIX	X	RESULT DOES NOT EXTRAPOLATE TO ROOM TEMP DATA
R12 1974	F	2	6.23	2.03	-1.19	300-3000		R	ALTERNATE EXPRESSION NON-LINEAR LEAST SQ
	F	2	9.33	1.11	0.	300-3000		R	ALTERNATE EXPRESSION LEAST SQUARES WITH ACTIV ENERGY = 0
S1 1967	F	2	12.920	0.	1.0			R	RECOMMENDED VALUE BASED ON REF D5 AND ACT ENERGY = 1.0
S4 1965	F	2	14.869	0.	3.820	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	SELECTED
S33 1972	F	2	12.763	0.	0.780	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS

291. HO + HO → H2O + O

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
W1 1968	F	2	12.190 (0.077)			300		R	EVALUATION
W3 1965	F	2	12.08 (0.1)			300	DISCHARGE FLOW SYST OH FROM H+NO2 (OH) BY ESR	X	
W11 1967	F	2	12.097 (0.017)			300	DISCHARGE FLOW SYST OH FROM H+NO2 MASS SPEC	X	A = 12.19 ALSO FITS
W31 1972	F	2	12.190 (0.5)			300		R	EVALUATION
W39 1973	F	2	12.15 (0.06)			300	FAST FLOW REACTOR ESR DETECTION OH BY NO2 + H	X	ACCOUNT FOR OH LOSS ON WALLS
A19 1971	R	2	13.6	0.	17.3 (0.5)	753-1045	DISCHARGE FLOW SYST ESR-MASS SPEC	X	
B24 1965	R	2	13.92 (0.80)	0.	18.0 (1.0)			R	SELECTED (REF K4)
B13 1965	R	2	13.62 (0.15)	0.	18.0 (0.2)	300-3000		R	EVALUATION
B50 1968	R	2	13.76 (0.45)	0.	18.0 (0.5)	300-3000		R	FROM REVERSE AT 300K AND E FROM REF V1 CAUTION RECOMMENDED
B88 1972	R	2	13.83 (0.20)	0.	18.35 (0.40)	300-2000		R	EVALUATION
F7 1965	R	2	13.62	0.	18.			R	FROM REVERSE BASED ON K4
G20 1974	R	2	13.82 (0.2)	0.	18.4	300-2000		R	PREFERRED VALUE BASED ON B88
J3 1967	R	2	14.10	0.	18.1	1330-1560	STIRRED-FLOW REACTOR H2/O2 RXN	X	BEST FIT BETWEEN XPTL AND COMPT TEMPS
K3 1964	R	2	13.84	0.	17.75	300-2000		R	EVALUATION
K4 1963	R	2	13.62 (0.8)	0.	18.1 (1.0)	300-2000		R	
K45 1970	R	2	13.94 (0.19)	0.	18.46 (0.36)	300-3500		R	SUGGESTED
M8 1967	R	2	11.52	0.67	17.4	1000-4000		C	JOHNSTON-PARR CALC
M9 1968	R	2	0.0			300		C	JOHNSTON PARR CALC
	R	2	10.0			1000		C	
M11 1965	R	2	13.84	0.	17.75	1500-3300	CO OXIDATION SHOCKED CO-O2-AR MIX	X	SELECTED (REF K3)
S1 1967	R	2	13.93	0.	18.0	300-900		R	FROM REVERSE BASED ON REFS V1,D5
S4 1965	R	2	15.881	0.	20.84	960-1080	SHOCK TUBE H2/O2/AR INDUCTION TIMES BASED ON OH EMISSION	X	SELECTED
S33 1972	R	2	13.763	0.	18.00	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	23 RX MECHANISM LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	R	2	13.62	0.	18.	300-3000		R	SELECTED (REF F7)
W1 1968	R	2	0.31			300		R	FROM REVERSE

292. HO + HO2 = H2O + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B88 1972	F	2	12.8			300		R	REASONABLE LOWER LIM NO RECOMMENDATION
G20 1974	F	2	13.6 (0.5)			300		R	PREFERRED VALUE EVALUATION CONSIDER WHOLE RANGE
H37 1972	F	2	14.08 (0.07)			298	FLASH PHOTOLYSIS H2O IN H2,HE,OR AR WITH 2 PCT O2	X	RESULT INDICATES UNIT COLLISION EFFIC
J1 1967	F	2	13.1 (1.7)	0.	0.	1000-3500		C	ESTIMATED BY ANALOGY W/ H + HO2 = H2 + O2
L11 1971	F	2	13.0 (1.0)	0.	1.0	300-1000		R	EVALUATION E ESTIMATED
L16 1974	F	2	13.7 (0.3)	0.	1.0	300-1000		R	RECOMMENDED EVALUATION EST ACTIVAT. ENERGY
N3 1964	F	2	11.96	0.5	0.			R	SELECTED
P13 1973	F	2	13.7	0.	0.	1400-1800	CH4/O2 FLAME 40 TORR MOLEC BEAM SAMPLING	X	APPROXIMATE ASSUMED EQUAL TO HO2 + O = HO + HO2
B88 1972	R	2						R	NO RECOMMENDATION NO DATA AVAILABLE

293. HO + H2O = HO2 + H2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

294. HO + NO = HO2 + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

295. HO + NO2 = HO2 + NO

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
890 1973	R	2						R	NO RECOMMENDATION ESTIMATES VARY
S20 1974	R	2	11.08 (0.5)			300		R	PREFERRED VALUE EVALUATION
L11 1971	R	2	9.0 (1.0)			300		R	EVALUATION VALUE APPROXIMATE
L16 1974	R	2	11.0 (0.3)			300		R	RECOMMENDED RELATIVE TO HO2+HO2=H2O2+O2
N6 1964	R	2	12.5	0.5	2.4			R	SUGGESTED

296. HO + N2O = HO2 + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

297. HO + O + M = HO2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
R24 1965	F	1	17.08			300		R	SELECTED M = O2, AR
	F	3	16.7			300		R	SELECTED M = O2
B85 1973	F	3	20.2	-1.5	0.	200-4000		C	EMPIRICAL CORELATION
B88 1972	F	3						R	NO RECOMMENDATION NO VALID DATA
B85 1972	R	2						R	NO RECOMMENDATION NEVER OBSERVED

298. HO + O2 → HO2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B24 1965	R	2	9.7			300		R	SELECTED
J1 1967	R	2	12.8 (2.0)	0.	0.	1000-3500		C	ESTIMATED BY ANALOGY M/ H + HO2 → H2 + O2
K43 1960	R	2	9.7			300	STATIC DISCHARGE H2O ADDED TO O2 NO + O AFTERGLOW	X	
L11 1971	R	2	13.7 (1.0)	0.	1.0	300-1000		R	EVALUATION E ESTIMATED
L16 1974	R	2	13.7 (0.3)	0.	1.0	300		R	RECOMMENDED EVALUATION EST ACTIVAT. ENERGY
Y3 1964	R	2	11.96	0.5	0.			R	SUGGESTED
P13 1973	R	2	13.7	0.	0.	1400-1800	CH4/O2 FLAME 40 TORR MOLEC BEAM SAMPLING	X	APPROXIMATE ASSUMED EQUAL TO HO + HO2 → H2O + O2

299. H2 + NO → H2O + N

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS

NO DATA ON THIS RX IN DATA BANK AT THIS TIME

300. H2 + NO2 → H2O + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
G21 1939	F	2	3.220			657	THERMAL RX H2/O2/NO2	X	
	F	2	3.350			670		X	
	F	2	3.458			684		X	
	F	2	3.587			696		X	
	F	2	3.648			707		X	

301. H2 + N2O = H2O + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

302. H2 + O + M = H2O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

303. H2 + O2 = H2O + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

304. + N + M + N2 + N

REF	DIR	JRD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
A13 1961	F	3	19.89	-1.5	0.			R	M = N2 AVERAGE LIT VALUE
	F	3	20.59	-1.5	0.			R	M = N AVERAGE LIT VALUE
	F	3	19.29	-1.5	0.			R	M = O2,O,NO AVERAGE LIT VALUE
A18 1968	F	3	19.92 (0.04)	-1.6	0.	8000-15000	SHOCK TUBE N2/AR MIX VACUUM UV FOR N2	X	FROM REVERSE M = AR
	F	3	20.35 (0.10)	-1.6	0.	8000-15000		X	M = N2
	F	3	20.99 (0.14)	-1.6	0.	8000-15000		X	M = N
A20 1962	F	3	15.81 (0.12)			6400	SHOCK TUBE STUDY	X	M = N
B19 1963	F	3	18.3 (0.4)	-1.0	0.			R	M = N2
	F	3	18.8 (0.5)		0.			R	M = N
	F	3	18.0 (1.0)		0.			R	M = ANY
B27 1965	F	3	18.3 (0.5)	-1.0	0.			R	M = N2
	F	3	18.3 (1.0)	-1.0	0.			R	M = N
	F	3	18.0 (1.0)	-1.0	0.			R	M = ANY
B34 1961	F	3	16.78	-0.5	0.			R	M = N2
	F	3	17.5	-0.5	0.			R	M = N
	F	3	16.60	-0.5	0.			R	M = AR,O,O2
B37 1964	F	3	18.3 (0.5)	-1.0	0.			R	M = N2
	F	3	18.9 (0.5)	-1.0	0.			R	M = N
	F	3	18.0 (0.5)	-1.0	0.			R	M = ALL OTHER
B38 1969	F	3	17.45 (0.5)	-0.75	0.			R	M = N2
	F	3	21.22 (0.6)	-1.5	0.			R	M = N
	F	3	17.20 (0.5)	-0.82	0.			R	M = O2,O,NO,AR
B62 1969	F	3	15.28			298	STATIC DISCHARGE N FOLLOWED AT 5800A	X	ROOM TEMPERATURE M = N2, AR
	F	3	15.32			298		X	M = HE
	F	3	15.40			298		X	M = CO2
B40 1973	F	3	14.48 (0.10)	0.	-0.99 (0.1)	100-600		R	EVALUATION M = N2
C1 1967	F	3	18.0 (1.0)	-1.0	0.			R	SELECTED (REF B19) M = ANY

304. N + N + M = N2 + M

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
C14 1966	F	3	15.70 (0.03)			196	DISCHARGE-FLOW SYST CO2 OR N2O ADDED TO ACTIVE NITROGEN	X	M = CO2
	F	3	15.41 (0.08)			298		X	M = CO2
	F	3	15.56 (0.05)			196		X	M = N2O
	F	3	15.34 (0.06)			298		X	M = N2O
C16 1968	F	3	15.57 (0.09)			298	N2 DISCH-FLOW SYST METHOD AS IN REF C15	X	M = H2O
	F	3	15.53 (0.05)			196		X	M = CO2
	F	3	15.46 (0.08)			196		X	M = N2O
C29 1965	F	3	15.140			293	DISCHARGE-FLOW SYST NITROGEN AFTERGLOW	X	M = N2
	F	3	15.238			293		X	M = AR
	F	3	15.283			293		X	M = HE
D16 1959	F	3	14.5	0.	0.		SHOCK TUBE DISSOC OF AIR	X	SELECTED VALUE COMPARED WITH EXPT
E6 1966	F	3	15.62 (0.037)			298	STATIC AND FLOW SYST (N) BY ESR	X	M = N2
G20 1974	F	3	14.48 (0.2)	0.	-1.	100-600		R	M = N2 PREFERRED VALUE EVALUATION
G21 1973	F	3	14.48 (0.2)	0.	-1.0	100-600		R	M = N2 PREFERRED VALUE EVALUATION
H2 1967	F	3	1..7	0.	0.	673-6773		R	SURVEY M = N
	F	3	15.3	0.	0.	298-723		R	M = N2
H35 1959	F	3	15.46	0.	0.	195-450	DISCHARGE-FLOW SYST (N) BY NO TITRATION NO BY MASS SPEC	X	M = N2
	F	3	15.15	0.	0.	195-450		X	M = AR
	F	3	14.61	0.	0.	195-450		X	M = HE
H36 1958	F	3	15.795 (0.041)			298	DISCHARGE-FLOW SYST (N) BY NO TITRATION COLORLESS ENDPOINT	X	M = N2, AR
K25 1963	F	3	14.89			300	N2 DISCH-FLOW SYST	X	M = N2
	F	3	14.92			350	N2 STATIC DISCH SYST	X	M = N2
M23 1962	F	3	15.43 (0.08)			300	DISCHARGE-FLOW SYST ESR ATOM DETECTION	X	M = N2
S1 1967	F	3	15.53			300		R	MEAN VALUE M = N2 T DEP -0.7 TO 6400K
W17 1960	F	3	20.9	-1.5	0.	4500-7500	SHOCK TUBE N2/O2 MIX	X	BEST FIT TO RPT DATA M = N
	F	3	20.2	-1.5	0.	4500-7500		X	BEST FIT TO RPT DATA M = N2
	F	3	19.7	-1.5	0.	4500-7500		X	BEST FIT TO RPT DATA M = AR,O,O2,NO

304. N + N + M + N2 + M

REF	DIR	ORD	A	N	C	T	EXPERIMENTAL	TYP	COMMENTS
W37 1958	F	2	15.78			298	STATIC DISCHARGE HOT-WIRE RES THERM AFTERGLOW FOLLOWED	X	EXTRAPOLLATED TO HIGH PRESSURE LIMIT
A13 1961	R	2	21.465	-1.5	225.21			R	M = N2 FROM REVERSE
	R	2	22.167	-1.5	225.21			R	M = N FROM REVERSE
	R	2	20.866	-1.5	225.21			R	M = O2,O,NO FROM REVERSE
A18 1968	R	2	21.14 (0.04)	-1.6	224.9	8000-15000	SHOCK TUBE N2/AR MIX VACUUM UV FOR N2	X	M = AR
	R	2	21.57 (0.10)	-1.6	224.9	8000-15000		X	M = N2
	R	2	22.21 (0.14)	-1.6	224.9	8000-15000		X	M = N
B19 1963	R	2	19.58 (0.4)	-1.0	224.9			R	M = N2
	R	2	20.11 (0.5)	-1.0	224.9			R	M = N
	R	2	19.28 (1.0)	-1.0	224.9			R	M = ANY
B34 1961	R	2	18.49	-0.5	225.			R	M = N2
	R	2	19.18	-0.5	225.			R	M = N
	R	2	18.30	-0.5	225.			R	M = AR,O,O2
B38 1969	R	2	18.70 (0.5)	-0.75	224.9			R	M = N2
	R	2	22.48 (0.6)	-1.5	224.9			R	M = N
	R	2	18.46 (0.5)	-0.82	224.9			R	M = O2,O,NO,AR
B56 1964	R	2	21.473	-1.5	225.			R	SELECTED (REF E2) M = ANY
	R	2	17.284	-0.5	225.			R	SELECTED (REF W7) M = AR
	R	2	17.68	-0.5	224.9			R	SELECTED (REF W7) M = N2
	R	2	17.28	-0.5	224.9			R	SELECTED (REF W7) M = NO
	R	2	22.61	-1.5	224.9			R	SELECTED (REF W7) M = N
	R	2	17.28	-0.5	224.9			R	SELECTED (REF W7) M = O2
	R	2	17.28	-0.5	225.			R	SELECTED (REF W7) M = O
B81 1966	R	2	17.68	-0.5	224.9	6000-9000	SHOCK TUBE STUDY N2/AR MIX INTERFEROMETRY	X	M = N2
	R	2	22.63	-1.5	224.9	6000-9000		X	M = N
	R	2	17.28	-0.5	224.9	6000-9000		X	M = AR
B90 1973	R	2	21.57 (0.45)	-1.6	224.93 (1.0)	6000-15000		R	EVALUATION EXPRESSION OF A18 M = N2

304. N + N + M = N2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
E3 1962	R	2	21.473	-1.5	225.05			R	FROM REVERSE BASED ON REF W17 M = N2
	R	2	20.96	-1.5	225.05			R	FROM REVERSE BASED ON REF W17 M = O2,O
G20 1974	R	2	21.56 (0.5)	-1.6	224.9	6000-15000		R	M = N2 PREFERRED VALUE EVALUATION
G21 1973	R	2	21.57 (0.5)	-1.6	224.9	6000-15000		R	M = N2 PREFERRED VALUE EVALUATION
H2 1967	R	2	19.85	-1.0	225.	5973-9973		R	SURVEY M = N
	R	2	19.85	-1.0	225.	5973-9973		R	M = N2
	R	2	19.6	-1.0	225.	5973-9973		R	M = AR
	R	2	19.6	-1.0	225.	5973-9973		R	M = NE
M19 1966	R	2	19.93	-1.0	225.23			C	CALCULATED VALUE M = ANY
T1 1967	R	2	19.28	-1.0	225.			R	SELECTED (REF B19) M = ANY
	R	2	16.6	-0.5	225.			R	ESTIMATED (REF C7) M = AR
	R	2	17.73	-0.5	225.			R	ESTIMATED (REF C7) M = N2
	R	2	16.18	-0.5	225.			R	ESTIMATED (REF C7) M = NO
	R	2	16.6	-0.5	225.			R	ESTIMATED (REF C7) M = N
	R	2	16.18	-0.5	225.			R	ESTIMATED (REF C7) M = O2
	R	2	16.18	-0.5	225.			R	ESTIMATED (REF C7) M = O
V6 1961	R	2	25.894	-2.50	224.5			C	ESTIMATED BY ANALOGY WITH O2+O2=O+O+O2 M = N,NO,N2,O,O2

305. N + NO = N2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
A13 1961	F	2	11.3	0.5	0.			R	ESTIMATED FROM AVAILABLE DATA
B19 1963	F	2	13.18 (0.3)	0.	0.			R	
B27 1965	F	2	13.18 (0.3)	0.	0.			R	
B34 1961	F	2	11.124	0.5	0.			R	SELECTED VALUE
B37 1964	F	2	13.18 (0.3)	0.	0.			R	
B52 1969	F	2	13.49 (0.2)	0.	0.334 (0.2)	300-1600		R	EVALUATION
B90 1973	F	2	13.20 (0.3)	0.	0.	300-5000		R	EVALUATION FWD RX AT 300K REV RX ABOVE 2000K
B97 1973	F	2	11.8	0.5	0.			C	ESTIMATE TRANS STATE CORELAT
C1 1967	F	2	13.18 (0.7)	0.	0.			R	SELECTED (REF B19)
C12 1961	F	2	13.48	0.	0.2 (0.7)	476-755	DISCHARGE FLOW SYST	X	
D9 1958	F	2	13.11	0.	0.	2000-3000		R	FROM REVERSE
F25 1957	F	2	13.5	0.	7.0	2188-2400	N2O/H2 AND N2O/CO FLAMES NO DECOMP BY PROBE	X	LEADS TO HIGH K FOR N+O2=NO+O
G20 1974	F	2	13.21 (0.3)	0.	0.	300-5000		R	PREFERRED VALUE EVALUATION
G21 1973	F	2	13.21 (0.3	0.	0.	300-5000		R	PREFERRED VALUE EVALUATION FROM REV ABOVE 2000K
H2 1967	F	2	13.3	0.	0.	300-2400		R	SELECTED VALUE
H3 1959	F	2	11.8 (0.5)			300		R	SELECTED
H13 1968	F	2	13.15 (0.15)			298		R	SUGGESTED VALUE
H16 1957	F	2	11.3 (0.5)			340	NO DECOMP INITIATED BY U235 EMISS FRAGM	X	TEMP UNCERTAIN GREATER THAN 340K
H17 1961	F	2	13.00 (0.18)			300	N2 DISCH-FLOW SYST RXN BY MASS SPEC	X	ALSO IN REF H18
K13 1957	F	2	11.6			300	STIRRED-FLOW REACTOR RXN BY MASS SPEC	X	LOWER LIMIT
K24 1958	F	2	13.7			300	STIRRED-FLOW REACTOR RXN BY MASS SPEC	X	LOWER LIMIT
K45 1970	F	2	13.44	0.	0.5	298-1912		R	SUGGESTED
N6 1964	F	2	11.96 (0.12)	0.5	0.			R	SUGGESTED
P9 1962	F	2	13.12 (0.10)			298	N2 DISCH-FLOW SYST RXN BY MASS SPEC	X	
V4 1960	F	2	12.34 (0.26)			500	N2 DISCH-FLOW SYST (NO) BY (NO2) ANAL	X	
W17 1960	F	2	13.11	0.	0.	4500-7500	SHOCK TUBE N2/O2 MIX	X	BEST FIT TO XPT DATA
A13 1961	R	2	11.74	0.5	72.019			R	BASED ON M6

305. N + NO = N2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
M19 1963	R	2	13.83 (0.3)	0.	75.0			R	
B27 1965	R	2	13.82 (0.3)	0.	74.5			R	
B34 1961	R	2	11.8	0.5	76.4			R	
B37 1964	R	2	12.82 (0.3)	0.	75.			R	
B38 1969	R	2	13.8 (0.3)	0.	75.5			R	EVALUATION
B52 1969	R	2	14.134 (0.3)	0.	75.4	300-1600		R	FROM REVERSE
B56 1964	R	2	11.74	0.5	72.			R	SELECTED (REF M6)
B68 1971	R	2	14.15	0.	75.3	2150-2800	SHOCK TUBE STUDY H2/O2/N2 MIX (NO) BY UV ABSORPT	X	SELECTED (B52)
B90 1973	R	2	13.88 (0.30)	0.	75.5 (0.3)	2000-5000		R	EVALUATION
C19 1967	R	2	13.8	0.	75.	2300-6000	SHOCK TUBE (NO) BY IR EMISS (O) BY CHEMILUMINESC	X	
D9 1958	R	2	13.7	0.	75.5	2000-3000		R	SELECTED (REF G12)
D16 1959	R	2	13.7	0.	75.5	3000	SHOCK TUBE DISSOC OF AIR	X	SELECTED VALUE COMPARED WITH EXPT
E3 1962	R	2	13.70	0.	75.54			R	SELECTED (REF G12)
G20 1974	R	2	13.89 (0.3)	0.	75.5	2000-5000		R	PREFERRED VALUE EVALUATION
G21 1973	R	2	13.89 (0.3)	0.	75.5	2000-5000		R	PREFERRED VALUE EVALUATION
H2 1967	R	2	13.7	0.	75.5	1973-2973		R	SURVEY
I1 1973	R	2	14.11	0.	75.4	2000-2250	FLAT PREMIXED FLAMES LEAN AND MODERATELY RICH	X	CALCULATED FROM MEASURED NO CONCS
L12 1971	R	2	7.41			2880	LAMINAR FLAME PREMIXED C3H8/O2/N2 ATMOSPHERIC PRESSURE	X	
M14 1966	R	2	13.85	0.	75.5			R	SELECTED (B19, W7)
T1 1967	R	2	13.83	0.	75.			R	SELECTED (REF B19)
V6 1961	R	2	12.000	0.5	75.5			R	SELECTED (REF D9)
W6 1962	R	2	13.8	0.	75.5	3400-6700	SHOCK TUBE STUDY NO/N2/O2/AR MIX (NO) BY UV ABSORPT	X	
W44 1973	R	2	14.3	0.	75.4			R	BASED ON REF B52

306. N + NO + M = N2O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	3	16.0 (2.0)	-1.0	0.			C	ESTIMATED M = ANY
B84 1965	F	3	14.6	-1.0	2.0			R	SELECTED PROBABLY UPPER LIMIT
L3 1961	F	3	16.83	-1.5	0.			R	SELECTED (D9)
S30 1972	F	3				673		R	EVALUATION NO EVIDENCE OF IT
B19 1963	R	2	14.0 (2.0)	-1.0	114.5			C	ESTIMATED M = ANY
L3 1961	R	2	14.8	-1.5	114.4			R	SELECTED (D9)
T1 1967	R	2	14.0	-1.0	115.			R	SELECTED (REF B19)

307. N + NO2 = NO + NO

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	2	11.0 (2.0)	0.	10.			R	
B27 1965	F	2	12.4 (2.0)	0.	0.			R	
B37 1964	F	2	11.01 (2.0)	0.	0.			R	
B90 1973	F	2						R	NO RECOMMENDATION SUGGEST DATA OF REF P10
G21 1973	F	2						R	NO RECOMMENDATION INSUFFICIENT DATA REF P10 BEST ESTIM
H3 1959	F	2	10.5 (0.5)			300		R	SELECTED
H16 1957	F	2	10.5 (0.5)			340	NO DECOMP INITIATED BY U235 EMISS FRAGM	X	TEMP UNCERTAIN GREATER THAN 340K
L3 1961	F	2	15.49	-1.0	0.			C	COLLISION THEORY
P10 1965	F	2	12.57 (0.08)			300	N2 DISCH-FLOW SYST NO2 ADDED MASS SPEC ANALYSIS	X	OVERALL K=1.1 E+13 MEASURED IMPORTANCE ALTERNATE PATHS
B19 1963	R	2	10.0 (2.0)	0.	87.			R	
B90 1973	R	2						R	NO RECOMMENDATION NO EXPERIMENTAL DATA NO+NO=N2O+O FASTER
G21 1973	R	2						R	NO XPTL DATA REACTION SLOWER THAN NO + NO = N2O + O
L3 1961	R	2	14.43	-1.0	77.3			C	COLLISION THEORY
S1 1967	R	2	9.96	0.5	77.886			R	FROM REVERSE REVERSE K FROM P10 TEMP DEP ASSUMED
T1 1967	R	2	10.0	0.	88.			R	SELECTED (REF B19)

308. N + NO2 = N2 + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	2	11.0 (2.0)	0.	14.			R	
B27 1965	F	2	11.1 (2.0)	0.	14.			R	
B37 1964	F	2	11.01 (2.0)	0.	14.			R	
L3 1961	F	2	14.18	-1.0	0.			C	COLLISION THEORY
P10 1965	F	2	12.05 (0.34)			300	DISCHARGE FLOW SYST MASS SPEC, PHOTOMET	X	APPROX 0.10 OF ALL PATHS FOR N+NO2
B19 1963	R	2	11.23 (2.0)	0.	135.			R	
B20 1964	R	2	12.00	0.	120.			R	SELECTED (REF N2)
L3 1961	R	2	14.43	-1.0	120.5			C	COLLISION THEORY
T1 1967	R	2	11.23	0.	136.			R	SELECTED (REF B19)

309. N + NO2 = N2O + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	2	12.6 (2.0)	0.	8.			R	
B27 1965	F	2	13.1 (2.0)	0.	0.			R	
H3 1959	F	2	10.28 (0.5)			300		R	SELECTED
H16 1957	F	2	10.3 (0.3)			340	DECOMP NO INITIATED BY U235 FISSION	X	TEMP UNCERTAIN GREATER THAN 340 K
L3 1961	F	2	14.20	-0.5	0.			C	COLLISION THEORY
P10 1965	F	2	12.68 (0.04)			300	DISCHARGE FLOW SYST MASS SPEC, PHOTOMET	X	APPROX 0.43 OF ALL PATHS FOR N+NO2
B19 1963	R	2	13.0 (2.0)	0.	49.9			R	
B37 1964	R	2	12.00	0.	93.			R	SELECTED (REF N2)
L3 1961	R	2	14.57	-0.5	41.8			C	COLLISION THEORY
T1 1967	R	2	13.0	0.	50.			R	BASED ON B19, K12

310. N + N2O = NO + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	2	8.7 (1.0)	0.	10.			R	
L3 1961	F	2	15.23	-1.0	0.			C	COLLISION THEORY
B19 1963	R	2	7.9 (1.0)	0.	121.			R	
L3 1961	R	2	14.43	-1.0	110.6			C	COLLISION THEORY
T1 1967	R	2	7.9	0.	121.			R	SELECTED (REF B19)

311. N + O + M = NO + M

REF	DIR	JAD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
A13 1961	F	3	20.8	-1.5	0.			R	BASED ON M17
B19 1963	F	3	16.8 (1.0)	-0.5	0.			R	M = ANY
B27 1965	F	3	16.9 (1.0)	-0.5	0.			R	M = ANY
B34 1961	F	3	17.23	-0.5	0.			R	M = ANY
B37 1964	F	3	17.9 (0.5)	-0.5	0.			R	M = ANY
B38 1969	F	3	15.60 (0.5)	0.	0.			R	RECOMMENDED VALUE M = N2,O2
	F	3	22.52 (0.6)	-1.5	0.			R	M = NO,O,N
	F	3	16.94 (0.5)	-0.6	0.			R	M = AR
B52 1969	F	2	16.81 (0.18)	-0.5	0.	200-400		R	EVALUATION
B85 1973	F	3	16.0	-1.	0.	200-4000		C	EMPIRICAL CORELATION
B90 1973	F	3	16.81 (0.20)	-0.5	0.	200-400		R	M = N2 EVALUATION SAME RATE AS REF C15
C1 1967	F	3	16.8 (1.0)	-0.5	0.			R	SELECTED (REF B19)
C8 1968	F	3	16.04 (0.04)			196	N2 DISCH-FLOW SYST METHOD AS IN REF C15	X	20-50PCT H2 ADDED TO ACTIVE N2 M = H2
C14 1966	F	3	15.81 (0.03)			298	DISCHARGE-FLOW SYST CO2 OR N2O ADDED TO ACTIVE NITROGEN	X	O ATOMS FROM DISSN OF CO2 OR N2O M = CO2
	F	3	15.91 (0.03)			196		X	M = CO2
	F	3	15.73 (0.03)			298		X	M = N2O
	F	3	15.90 (0.02)			196		X	M = N2O
C15 1967	F	3	15.568 (0.027)			327	N2 DISCH-FLOW SYST O-ATOMS FROM N+NO	A	(O) AND (N) BY NO AND N2 EMISSIONS M = N2
	F	3	15.589 (0.032)			298		X	M = N2
	F	3	15.595 (0.033)			274		X	M = N2
	F	3	15.689 (0.040)			196		X	M = N2
	F	3	15.474 (0.048)			298		X	M = AR
	F	3	15.554 (0.033)			196		X	M = AR
	F	3	15.134 (0.051)			298		X	M = HE
C15 1967	F	3	15.40	0.	-0.27 (0.12)		N2 DISCH-FLOW SYST O-ATOMS FROM N+NO	X	(O) AND (N) BY NO AND N2 EMISSIONS M = N2
	F	3	15.28	0.	-0.27 (0.12)			X	M = AR
C16 1968	F	3	16.41 (0.03)			298	N2 DISCH-FLOW SYST METHOD AS IN REF C15	X	M = H2O

311. N + O + M + NO + M

REF	DIR	ORD	A	N	C	T	EXPERIMENTAL	TYP	COMMENTS
	F	3	16.167 (0.029)			196		X	M = CO2
	F	3	16.041 (0.038)			196		X	M = N2O
D16 1959	F	3	14.8	0.	0.		SHOCK TUBE DISSOC OF AIR	X	SELECTED VALUE COMPARED WITH EXPT
F5 1963	F	3	16.3			300		R	SUGGESTED
G20 1974	F	3	16.81 (0.2)	-0.5	0.	200-400		R	M = N2 PREFERRED VALUE EVALUATION
G21 1973	F	2	16.81 (0.2)	-0.5	0.	200-400		R	M = N2 EVALUATION RATE OF REF C15
H2 1967	F	3	15.5	0.	0.	298-348		R	SELECTED VALUE M = N2
K25 1963	F	3	15.52			350	N2 STATIC DISCH SYST	X	DISCH IN N2+O2 MIX M = N2
M18 1961	F	3	15.262 (0.045)			300	N2 DISCH-FLOW SYST (N) BY NO TITR	X	RESULT DEPENDS ON K(O+O+M), K(O+WALL) M = N2
N6 1964	F	3	15.6	0.	0.			R	SUGGESTED
W17 1960	F	3	20.8	-1.5	0.	4500-7500	SHOCK TUBE N2/O2 MIX (NO) BY U.V. ABSORPT	X	M = O, N, O2, N2, NO
W17 1960	F	3	20.0	-1.5	0.	4500-7500		X	BEST FIT TO XPT DATA M = AR
A13 1961	R	2	21.714	-1.5	150.0			R	BASED ON E2
B19 1963	R	2	17.38 (1.0)	-0.5	150.			R	M = ANY
B34 1961	R	2	16.947	-0.5	149.			R	M = ANY
B38 1969	R	2	21.900 (0.6)	-1.5	149.8			R	M = NO,O,N
	R	2	14.96 (0.5)	0.	149.8			R	M = O2,N2
	R	2	16.32 (0.5)	-0.6	149.8			R	M = AR
B52 1969	R	2	17.356	-0.5	148.83	3000-5000		R	FROM REVERSE CAUTION RECOMMENDED LARGE ERROR LIMITS
B56 1964	R	2	21.714	-1.5	150.			R	SELECTED (REF E3) M = ANY
	R	2	20.60	-1.5	150.			R	SELECTED (REF W7) M = AR
	R	2	20.60	-1.5	150.			R	SELECTED (REF W7) M = N2
	R	2	21.90	-1.5	150.			R	SELECTED (REF W7) M = NO
	R	2	21.90	-1.5	150.			R	SELECTED (REF W7) M = N
	R	2	20.60	-1.5	150.			R	SELECTED (REF W7) M = O2
	R	2	21.90	-1.5	150.			R	SELECTED (REF W7) M = O
M85 1973	R	2	22.32	-2.	154.5	200-4000		C	FROM REVERSE

311. N + O + M + NO + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B90 1973	R	2						R	NO RECOMMENDATION SUGGEST DATA OF REF W6
C19 1967	R	2	20.60	-1.5	150.	2300-6000	SHOCK TUBE (NO) BY I.R. EMISS	X	M = AR, O2, N2
	R	2	21.90	-1.5	150.	2300-6000		X	M = NO, O, N
E3 1962	R	2	21.714	-1.5	150.0			R	FROM REVERSE BASED ON REF W17 M = ANY
F10 1961	R	2	15.8	0.	150.	3000-4300	SHOCK TUBE NO/AR MIX (NO) BY U.V. ABSORPT	X	SOME INACCURACY DUE TO N+NO+N2+O M = AR
G20 1974	R	2	20.60	-1.5	150.	4200-6700		R	M = AR, O2, N2 NO RELIABLE RECOMN USE WITH CAUTION
	R	2	21.85	1.5	150.	4200-6700		R	M = NO, N, O NO RELIABLE RECOMN USE WITH CAUTION
G21 1973	R	2						R	NO RECOMMENDATION INSUFFICIENT DATA REF W6 BEST AVAIL
H2 1967	R	2	20.59	-1.5	150.	2973-9973		R	SURVEY M = AR
	R	2	20.59	-1.5	150.	2973-9973		R	M = N2
	R	2	20.59	-1.5	150.	2973-9973		R	M = O2
	R	2	21.9	-1.5	150.	2973-9973		R	M = NO
	R	2	21.9	-1.5	150.	2973-9973		R	M = N
	R	2	21.9	-1.5	150.	2973-9973		R	M = O
K45 1970	R	2	20.60	-1.5	150.	3000-8000		R	RECOMMENDED M = AR, N2, O2
M19 1966	R	2	19.46	-1.0	150.1			C	CALCULATED VALUE M = ANY
M26 1972	R	2	14.137	0.	148.	2600-6300	SHOCK TUBE STUDY ATOMIC RES ABS SPECT FOLLOWED (O)	X	M = AR
T1 1967	R	2	17.38	-0.5	150.			R	SELECTED (REF B19) M = ANY
	R	2	18.75	-1.0	151.			R	SEL (B19), EST (W6) M = AR
	R	2	18.75	-1.0	151.			R	SEL (B19), EST (W6) M = N2
	R	2	20.049	-1.0	151.			R	SEL (B19), EST (W6) M = NO
	R	2	20.049	-1.0	151.			R	SEL (B19), EST (W6) M = N
	R	2	18.75	-1.0	151.			R	SEL (B19), EST (W6) M = O2
	R	2	20.049	-1.0	151.			R	SEL (B19), EST (W6) M = O
V6 1961	R	2	25.361	-2.5	149.			C	M = N,NO,N2,O,O2 ESTIMATED BY ANALOGY WITH O2+O2=O+O+O2
W6 1962	R	2	20.60	-1.5	150.	4200-6663	SHOCK TUBE STUDY NO/N2/O2/AR MIX NO BY UV ABSORPT	X	M = AR, O2, N2
	R	2	21.40	-1.5	150.	3988-6633		X	M = NO, O, N

			312.	N	+ O2		+ NO + O		
REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
A13 1961	F	2	11.95	0.5	7.83	300-2400		R	PLOT EXPTL DATA
B19 1963	F	2	8.26 (0.3)	1.5	6.0			R	
B27 1965	F	2	8.3 (0.3)	1.5	13.			R	
B34 1961	F	2	11.38	0.5	6.6			C	
B36 1969	F	2	12.52	0.	6.4	333	N2 DISCH-STATIC SYST DECAY N2 FOLLOWED	A	
B37 1964	F	2	8.3 (0.3)	1.5	6.6			R	SELECTED VALUE
B38 1969	F	2	8.26 (0.3)	1.5	6.0			R	SUGGESTED VALUE
B52 1969	F	2	9.81 (0.1)	1.	6.25 (0.2)	300-2000		R	EVALUATION
B68 1971	F	2	9.91	1.0	6.24	2150-2800	SHOCK TUBE STUDY H2/O2/N2 MIX (NO) BY UV ABSORPT	X	SELECTED (B52)
B90 1973	F	2	9.811 (0.30)	1.	6.25 (0.3)	300-3000		R	EVALUATION
B93 1973	F	2	9.81 (0.11)	1.	6.26	300-3000		R	CRITICAL EVALUATION ACCURATE OVER QUOTED TEMP RANGE
B97 1973	F	2	11.8	0.5	8.			C	ESTIMATE TRANS STATE CORELAT
C1 1967	F	2	8.26 (0.70)	1.5	6.0			R	SELECTED (REF B19)
C12 1961	F	2	9.18 (0.03)			412	N2 DISCH-FLOW SYST (N) BY NO TITRATION	X	
	F	2	9.40 (0.02)			435		X	
	F	2	9.70 (0.02)			476		X	
	F	2	9.95 (0.03)			538		X	
	F	2	10.40 (0.03)			610		X	
	F	2	10.61 (0.05)			665		X	
	F	2	10.95 (0.02)			755		X	
C12 1961	F	2	12.92	0.	7.1	412-755	N2 DISCH-FLOW SYST (N) BY NO TITRATION	X	
C24 1970	F	2	7.813 (0.038)			302	DISCHARGE-FLOW (N) BY TITRATION	X	
C24 1970	F	2	12.96	0.	7.1	302-1000		R	COMBINED OWN RESULT WITH HI TEMP RESULTS OF OTHERS
D9 1958	F	2	11.01	0.5	6.2			R	SUGGESTED BASED ON REF R13
D16 1959	F	2	11.0	0.5	6.2		SHOCK TUBE DISSOC OF AIR	X	SELECTED VALUE COMPARED WITH EXPT
E3 1962	F	2	12.0	0.5	6.2			R	SELECTED (REF W17)
G20 1974	F	2	9.82 (0.3)	1.	6.26	300-3000		R	PREFERRED VALUE EVALUATION

312. N + O2 + NO + O

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
G21 1973	F	2	9.82 (0.3)	1.	6.26	300-3000		R	PREFERRED VALUE EVALUATION
M2 1967	F	2	12.3	0.	6.0	398-753		R	RECOMMENDED VALUE
M3 1959	F	2	7.78 (0.02)			300		R	SELECTED
M16 1957	F	2	7.8 (0.5)			340	NO DECOMP INITIATED BY U235 FISSION	X	TEMP UNCERTAIN GREATER THAN 340K
	F	2	13.58	0.	8.0		STATIC SYSTEM NO DECOMP IN QUARTZ ABSORPTION	X	
R13 1957	F	2	12.3	0.	6.2	393 515	N2 DISCH-FLOW SYST MASS SPEC	X	DISAPPEAR N-ATOMS FOLLOWED
R25 1963	F	2	7.7			350	N2 DISCH-FLOW SYST O2 EFFECT ON N+N RXN	X	
R31 1955	F	2	13.58	0.	8.0	1600-1800		R	FROM REVERSE DATA OF VETTER
R45 1970	F	2	13.00 (0.09)	0.	7.50 (0.20)	300-3000		R	SUGGESTED
L12 1971	F	2	9.73			2880	LAMINAR FLAME PREMIXED C3H8/O2/N2 ATMOSPHERIC PRESSURE	X	
N6 1964	F	2	11.1	0.5	6.0	400-1500		R	
S1 1967	F	2	8.171	1.5	5.683	400-5000		R	BEST FIT EXPTL DATA
	F	2	13.181	0.	7.793	400-1700		R	BEST FIT EXPTL DATA
T1 1967	F	2	10.124	1.0	7.			C	ESTIMATED FROM W6
V5 1967	F	2	9.26			453	DISCH-FLOW SYST (N) BY N+NO (O) BY NO2+O	X	
	F	2	9.76			536		X	
	F	2	10.11			603		X	
V5 1967	F	2	12.58	0.	7.0	453-603	DISCH-FLOW SYST (N) BY N+NO (O) BY NO2+O	X	SUPERSEDES M16
V6 1961	F	2	11.006	0.5	6.20			R	SELECTED (REF D9)
W1 1968	F	2	9.780 (0.3)	1.0	6.4	300-5000		R	EVALUATION
W16 1967	F	2	7.68			300	N2 DISCH-FLOW SYST (N) BY ESR N DECAY FOLLOWED	X	EFFECT O2 IMPURITY IN N2 DISCUSSED
	F	2	8.336			353		X	
	F	2	8.480			360		X	
	F	2	8.93			408		X	
	F	2	9.456			470		X	
	F	2	10.212			586		X	
	F	2	11.248			710		X	

312. N + O2 + NO + O

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
W16 1967	F	2	11.5	0.5	7.13	300-2000		R	FITTED OWN LOW TEMP RESULTSWITH HIGHTEMP RESULTS OF OTHERS
W16 1967	F	2	13.149 (0.021)	0.	7.9 (0.2)	300-910	N2 DISCH-FLOW SYST (N) BY ESR N DECAY FOLLOWED	X	EFFECT O2 IMPURITY IN N2 DISCUSSED
W17 1960	F	2	12.0	0.5	6.20	4500-7500	SHOCK TUBE N2/O2 MIX	X	BEST FIT TO XPT DATA
W44 1973	F	2	13.36	0.	7.7			R	RECOMMENDED
A13 1961	R	2	11.083	0.5	39.24	300-2400		R	PLOT EXPTL DATA
B19 1963	R	2	7.63 (0.3)	1.5	38.0			R	
B27 1965	R	2	7.63 (0.3)	1.5	38.			R	
B34 1961	R	2	10.7	0.5	38.6			R	SUGGESTED VALUE
B37 1964	R	2	7.63 (0.3)	1.5	38.			R	
B38 1969	R	2	7.64 (0.3)	1.5	38.0			R	
B52 1969	R	2	9.19 (0.1)	1.	38.64 (0.2)	300-2000		R	FROM REVERSE
B56 1964	R	2	9.51	1.0	39.1			R	SELECTED (REF K13)
B90 1973	R	2	9.18 (0.30)	1.	38.6 (0.3)	1000-3000		R	FROM REVERSE
D9 1958	R	2	10.31	0.5	38.4			R	FROM REVERSE
F7 1965	R	2	12.56	0.	39.5	1500-1700		R	SELECTED (REF K26)
	R	2	11.62	0.	38.2	400-500		R	SELECTED (REF K13)
G20 1974	R	2	9.18 (0.3)	1.	38.7	1000-3000		R	PREFERRED VALUE EVALUATION
G21 1973	R	2	9.18 (0.3)	1.	38.8	1000-3000		R	PREFERRED VALUE FROM REVERSE
H2 1967	R	2	9.51	1.0	39.1	448-4973		R	SURVEY
K11 1955	R	2	12.92	0.	40.5		STATIC SYSTEM NO DECOMP IN QUARTZ ABSORPTION SPECT	X	
K26 1959	R	2	12.56	0.	39.5 (1.0)	1500-1700	STATIC SYSTEM NO DECOMP/PORCELAIN ABSORPTION SPECT	X	
K31 1955	R	2	12.92	0.	40.5	1600-1800		R	CALCULATED FROM DATA OF VETTER
M19 1966	R	2	9.51	1.0	39.1			R	SELECTED (B19,W7)
W1 1968	R	2	9.12 (0.3)	1.0	38.2	300-5000		R	EVALUATION CALC FROM REVERSE
W6 1962	R	2	9.51	1.	39.1	450-5000		R	FITTED OWN HIGH TEMP RESULTWITH LOW TEMP RESULTS OF OTHERS

313. N + O2 + M + NO2 + M

REF	DIF	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
							NO DATA ON THIS RX IN DATA BANK AT THIS TIME		

314. NO + NO + N2 + O2

REF	DIF	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
H14 1963	F	2	13.0 (1.0)	0.	79.5			R	
H27 1965	F	2	12.8 (1.0)	0.	79.5			R	
H40 1973	F	2						R	NO RECOMMENDATION PROBALY MINOR
C1 1967	F	2	13.0 (1.0)	0.	79.5			R	SELECTED (REF B14)
D9 1950	F	2	12.11	0.	63.8			R	SELECTED (REF K31)
F27 1961	F	2	6.511			2070	SHOCK TUBE N2/AR NO BY UV ABSORPTION	R	ASSUME PROD N2 + O2
	F	2	8.230			3070		R	
	F	2	9.009			3070		R	
	F	2	10.021			4230		R	
+27 1961	F	2	23.38	-2.5	85.5	1400-4300	SHOCK TUBE	R	ASSUME PROD N2 + O2 OWN DATA + REF K26
K11 1455	F	2	12.11	0.	63.8	1370-1535	STATIC SYSTEM NO DECOMP IN QUARTZ RXN FOLL SPECTROPHOT	R	HOMOGEN ABOVE 1400 CONCLUDED N2+O2 PROD PROBABLY WAS N2O+O
W6 1962	F	2	23.38	-2.5	85.5	3000-8000	SHOCK TUBE STUDY NO/N2/O2/AR MIX (NO) BY UV ABSORPT	R	SELECTED
H14 1963	R	2	14.3 (1.0)	0.	122.4			R	
H56 1964	R	2	24.48	-2.5	128.5			R	SELECTED (REF F10)
H40 1973	R	2						R	NO RECOMMENDATION PROBALY MINOR
D9 1950	R	2	13.43	0.	107.			R	FROM REVERSE
M19 1966	R	2	14.30	0.	122.			R	SELECTED (B19,W7)
T1 1967	R	2	14.3	0.	122.			R	SELECTED (REF B19)
W6 1961	R	2	13.431	0.	106.4			R	SELECTED (REF K11)
W6 1962	R	2	24.46	-2.5	128.5	3000-8000	SHOCK TUBE STUDY NO/N2/O2/AR MIX BY U.V. ABSORPT	R	CALCD FROM REVERSE EXPT NOT SENSITIVE TO VALUE OF R

315. NO + NO → N2O + O

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	2	12.54 (1.0)	0.	64.			R	
B20 1964	F	2	12.511	0.	64.28			R	FROM REVERSE
B34 1961	F	2	12.41	0.	63.8			R	
B90 1973	F	2	12.11 (0.29)	0.	63.8 (3.0)	1200-2000		R	EVALUATION EXPRESSION OF REF K11
C19 1967	F	2	20.68	-2.5	85.5	2300-6300	SHOCK TUBE NO NO, N2O BY IR EMISS O BY CHEMILUMINESC	X	USING K FOR NO+NO FROM F27 DATA 2.5X HIGHER
F12 1958	F	2	12.5	0.	68.	1450-1730	FLAME STUDY N2O TO H2/AIR FLAME (NO),(N2O) MASS SPEC	X	FROM REVERSE
F27 1961	F	2	8.511			2970	SHOCK TUBE NO/AR (NO) BY U.V. ABSORPT	X	ASSUMED PROD N2 + O2 PROBABLY N2O+O
	F	2	8.230			3070		X	
	F	2	9.009			3070		X	
	F	2	10.021			4230		X	
F27 1961	F	2	23.38	-2.5	85.5	1400-4300	SHOCK TUBE	X	ASSUMED PROD N2+O2 PROBABLY N2O+O OWN DATA + REF K26
G20 1974	F	2	12.12 (0.3)	0.	63.8	1200-2000		R	PREFERRED VALUE
G21 1973	F	2	12.12 (0.3)	0.	63.8	1200-2000		R	PREFERRED VALUE EVALUATION RATE OF REF K11
H2 1967	F	2	23.38	-2.5	85.5	1373-4273		R	SURVEY
K11 1955	F	2	12.11	0.	63.8	1370-1535	STATIC SYSTEM NO DECOMP IN QUARTZ RXN FOLL SPECTROPHOT	X	HOMOGEN ABOVE 1400 K CONCLUDED N2+O2 PROD PROBABLY WAS N2O+O
	F	2	0.049			1123		X	
	F	2	0.586			1190		X	
	F	2	0.848			1223		X	
	F	2	1.011			1247		X	
	F	2	1.418			1299		X	
	F	2	1.607			1323		X	
	F	2	1.973			1373		X	
	F	2	2.314			1423		X	
	F	2	2.511			1451		X	
	F	2	2.815			1499		X	
	F	2	3.021			1533		X	
K31 1955	F	2	12.11	0.	63.8	1370-1535	THERMAL REACTION	X	

315. N2O + NO → + N2O + O

REF	DIR	ORD	A	n	C	T	EXPERIMENTAL	TYP	COMMENTS
M26 1972	F	2	10.371	0.	29.0	2600-6300	SHOCK TUBE STUDY ATOMIC RES ABS SPECT FOLLOWED (D)	X	ACTIVATION ENERGY LESS THAN ENTHALPY
T1 1967	F	2	12.24	0.	64.			R	SELECTED (REF B19) BASED ON F8
W18 1952	F	2	15.20	0.	82.0	1000-1275	STATIC SYST QUARTZ DECOMP NO FOLLOWED MANOMET. + SPECTRO.	X	HETEROGEN BELOW 1000 HOMOGENEOUS ABOVE
W19 1952	F	2	2.85			1525	STATIC SYST QUARTZ DECOMP NO FOLLOWED MANOMET. + SPECTRO.	X	2ND ORDER REMOVAL NO ONLY INITIAL STAGES DATA OF VETTER
	F	2	3.78			1690		X	
	F	2	4.68			1840		X	
	F	2	5.36			1912		X	
Y1 1959	F	2	13.19	0.	63.1	1573-2087	FLOW SYSTEM NO DECOMP IN ALUNDUM RXN BY WET ANAL NO	X	HETEROGEN BELOW 1100 2ND ORDER ABOVE 1900
Y1 1959	F	2	4.22			1573	FLOW SYSTEM NO DECOMP IN ALUNDUM RXN BY WET ANAL NO	X	NO REMOVAL 2ND ORDER ABOVE 1500 K
	F	2	4.55			1588		X	
	F	2	4.62			1643		X	
	F	2	4.72			1673		X	
	F	2	5.05			1692		X	
	F	2	5.26			1723		X	
	F	2	5.43			1750		X	
	F	2	5.43			1778		X	
	F	2	5.47			1800		X	
	F	2	5.58			1810		X	
	F	2	5.73			1850		X	
	F	2	5.62			1878		X	
	F	2	6.18			1943		X	
	F	2	5.93			1950		X	
	F	2	6.15			1970		X	
	F	2	6.36			1990		X	
	F	2	6.69			2087		X	
B19 1963	R	2	14.0 (1.0)	0.	28.			R	
B20 1964	R	2	14.0	0.	28. (3.)			R	SELECTED (REF F11)

315. NO + NO → N2O + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B27 1965	R	2	14.1 (1.0)	0.	28.			R	
B34 1961	R	2	14.00	0.	28.			R	
B37 1964	R	2	14.01 (1.0)	0.	28.			R	
B43 1961	R	2	9.38 (0.19)			1806	SHOCK TUBE N2O DECOMP ANAL BY MASS SPEC	X	VALUE IS 3/4 OF REPORTED K FOR N2O+O = N2+O2 AND NO+NO
B44 1968	R	2	13.20	0.	25.	1800-2300	SHOCK TUBE N2O/NE (N2O),(N2),(O2),(NO) BY MASS SPEC ANALYS	X	K(N2O+O=NO+NO) SAME AS K(N2O+O=N2+O2)
B75 1968	R	2	13.20	0.	25.0	1800-2300	N2O DISS REFLECT SHK N2O,N2,O2,NO-M SPEC	X	
B90 1973	R	2	14.00 (0.25)	0.	28.0 (3.0)	1200-2000		R	EVALUATION EXPRESSION OF REF F11
D9 1958	R	2	11.00	0.	15.5			R	SELECTED (REF K19)
F7 1965	R	2	14.00	0.	28.	1400-1600		R	SELECTED (REF F11)
F11 1962	R	2	14.0	0.	28. (3.)	1450-1973	FLAME STUDY N2O ADDED TO FLAME (NO),(N2O) MASS SPEC	X	(O) FROM EQUIL DATA
F12 1958	R	2	10.26			1730	FLAME STUDY N2O TO H2/AIR FLAME (NO),(N2O) MASS SPEC	X	
	R	2	10.097			1635		X	CO ADDED
	R	2	9.74			1565		X	
	R	2	9.70			1565		X	
	R	2	9.64			1535		X	
	R	2	9.70			1500		X	CO ADDED
	R	2	9.45			1456		X	
	R	2	9.41			1456		X	
F12 1958	R	2	14.0	0.	32. (4.)	1450-1730	FLAME STUDY N2O TO H2/AIR FLAME (NO),(N2O) MASS SPEC	X	
F18 1966	R	2	13.36 (0.07)	0.	25.0 (0.8)	1695-2325	SHOCK TUBE N2O BY IR EMISSION O FROM O3 DECOMP	X	INDICATE NO+NO DOMINATE OVER N2+O2 AS PRODUCTS
G20 1974	R	2	14.01 (0.3)	0.	28.0	1200-2000		R	PREFERRED VALUE RATE SET EQUAL TO N2O + O → N2 + O2
G21 1973	R	2	14.01 (0.3)	0.	28.0	1200-2000		R	PREFERRED VALUE EVALUATION RATE OF REF F11
H2 1967	R	2	13.36	0.	25.	1673-2273		R	SURVEY
H19 1969	R	2	14.80 (0.48)	0.	26.7	1700-4000	SHOCK TUBE N2O/H2/AR OH AND NO BY UV ABS	X	BEST FIT TO EXPT
K19 1956	R	2	7.54			973	STATIC SYSTEM N2O DECOMPOSITION NO BY SPECTROPHOTOM	X	
K19 1956	R	2	11.0	0.	19.5 (1.0)			X	ESTIMATE ACT ENERGY
K45 1970	R	2	13.56	0.	27.2	900-2300		R	SUGGESTED

315. NO + NO = N2O + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
L14 1973	R	2				1300-1950	SINGLE PULSE SHOCK THERMAL DECOMP N2O CHROMATOGRAPHIC ANAL	X	K(N2O+O=NO+NO/N2+O2) =0.5 (0.2) ASSUME 3-STEP MECH
M29 1973	R	2				1169-1655	SINGLE PULSE SHOCK O2,N2,NO,CO,KR,CO2, N2O BY GC	X	K/K(N2O+O=N2+O2)= 0.317 (0.27)
S1 1967	R	2	13.66	0.	24.1	1370-2300		R	BEST FIT TO F11,F12,F18,K13,K26
S36 1973	R	2	13.65	0.	24.1	1400-3000	INCIDENT SHOCK N2O/AR MIX (N2O) BY IR EMISSION	X	LITERATURE VALUES FIT EXPTL DATA

316. NO + NO2 = N2O + O2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	2	12.3 (2.0)	0.	60.			C	ESTIMATED
L3 1961	F	2	13.76	-1.5	0.			C	COLLISION THEORY
B19 1963	R	2	13.0 (2.0)	0.	70.			C	ESTIMATED
B57 1964	R	2	14.78	-1.5	9.9			R	ESTIMATE OF REF L3
L3 1961	R	2	14.8	-1.5	9.9			C	COLLISION THEORY
T1 1967	R	2	13.0	0.	70.			R	SELECTED (REF B19)

317. NO + N2O = NO2 + N2

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	2	14.40 (1.0)	0.	50.			R	
B36 1961	F	2	14.40	0.	50.			R	
D9 1958	F	2	14.40	0.	50.			R	SELECTED (REF B30)
F28 1966	F	2	14.3	0.	50.0	1500-2200	SHOCK TUBE NO/N2O	E	
K33 1955	F	2	14.40	0.	50.0	924-1028	THERMAL REACTION	E	
K33 1955	F	2	2.550 (0.012)			924		E	
	F	2	3.169 (0.009)			970		E	
	F	2	3.778 (0.011)			1028		E	
L3 1961	F		14.40	0.	50.0			R	SELECTED (D9)
B19 1963	R	2	14.15 (1.0)	0.	83.			R	
B36 1961	R	2	13.36	0.	83.			R	
B57 1964	R	2	14.67	0.	83.3			R	SELECTED (REF D9) DERIVED FROM REF K11
L3 1961	R		14.67	0.	83.3			R	FROM REVERSE BASED ON D9
T1 1967	R	2	14.15	0.	83.			R	SELECTED (REF B19)

318. NO + O + M = NO2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	3	18.7 (1.0)	-1.0	0.			R	M = ANY
B27 1965	F	3	15.0 (0.5)	0.	-1.8			R	EVALUATION M = O2
	F	3	15.21 (0.5)	0.	-1.8			R	M = N2
B34 1961	F	3	16.3	0.	0.			R	M = ANY
B37 1964	F	3	18.74	-1.0	0.			R	M = ANY
B53 1970	F	3	15.02 (0.08)	0.	1.87 (0.1)	200-500		R	EVALUATION USE W/CARE ABOVE 500
B85 1973	F	3	20.2	-1.5	0.	200-4000		C	EMPIRICAL CORELATION
B90 1973	F	3	15.04 (0.08)	0.	-1.87 (0.1)	200-500		R	EVALUATION M = O2, AR
C9 1962	F	3	14.95	0.	-1.8 (0.4)		O2 DISCH-FLOW SYST	X	M = O2
	F	3	16.43 (0.05)			293		X	M = O2
	F	3	16.49 (0.05)			293		X	M = N2
	F	3	16.26 (0.07)			293		X	M = HE
D9 1958	F	3	16.26	0.	0.	298		R	SELECTED (REF F19)
F18 1966	F	3	17.98	-1.0	0.	1700-2300		R	BEST ESTIMATE BASED ON EXTRAPOL OF LOW TEMP RATES
F19 1957	F	3	16.26			300	PHOTOLYSIS OF NO2 STIRRED FLOW REACTOR	X	M = N2
F20 1936	F	3	17.6			298	STATIC NO2 PHOTOL (NO2) BY U.V.SPECTRO	X	M = N2
G8 1960	F	3	17.15			293	DIFFUSION FLAME PART DISSOC N2 OR O2 ADDED TO NO	X	M = NO DID NOT CONSIDER NO2+O=NO+O2
G20 1974	F	3	15.04 (0.08)	0.	-1.9	200-500		R	M = O2, AR PREFERRED VALUE EVALUATION
	F	3	15.18 (0.08)	0.	-1.9	200-500		R	M = N2 PREFERRED VALUE EVALUATION
G21 1973	F	2	15.04 (0.08)	0.	-1.87	200-500		R	M = AR, O2 PREFERRED VALUE EVALUATION
M2 1967	F	3	16.0	0.	0.	298-1023		R	SELECTED VALUE M = O2,N2
M9 1958	F	3	16.44 (0.03)			300	O2 DISCH-FLOW SYST (O) BY AIR AFTERGLOW	X	M = AR
M10 1967	F	3	16.46 (0.04)			298	DISCH-FLOW SYST	X	M = AR
	F	3	17.230 (0.046)			298		X	M = H2O
	F	3	17.134 (0.048)			298		X	M = D2O
M13 1968	F	3	16.48 (0.07)			298		R	SUGGESTED VALUE M = O2, N2, AR
M38 1973	F	3	15.02 (0.2)	0.	1.9	200-500		R	M = O2, AR RECOMMENDED RATE

318. NO + O + M = NO2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
	F	3	15.17 (0.2)	0.	1.9	200-500		R	M = N2 RECOMMENDED RATE EVALUATION
K14 1964	F	3	15.158 (0.056)	0.	-1.93 (0.10)	307-505	N2 DISCH-FLOW SYST (O) BY MASS SPEC	X	M = N2
K16 1958	F	3	16.40			296	O2 DISCH-FLOW SYST (O) BY AIR AFTERGLOW	X	M = O2 N2 AR ROOM TEMPERATURE ALSO REPORTED IN K20
	F	3	16.5 (0.1)			296		X	M = CO2 N2O ROOM TEMPERATURE
K19 1956	F	3	15.86			973	STATIC SYSTEM N2O DECOMPOSITION NO BY SPECTROPHOTOM	X	
	F	3	15.72			1031		X	
K21 1965	F	3	16.34			300	O2 DISCH-FLOW SYST	X	M = AR
	F	3	16.26			300		X	M = HE
	F	3	16.53			300		X	M = N2
	F	3	16.34			300		X	M = O2
	F	3	16.67			300		X	M = CO2
	F	3	16.67			300		X	M = N2O
	F	3	16.71			300		X	M = CH4
	F	3	16.71			300		X	M = CF4
	F	3	16.76			300		X	M = SF6
	F	3	17.14			300		X	M = H2O
K45 1970	F	3	21.43 (0.23)	-2.04	0.	212-2300		R	SUGGESTED M = O2
N6 1964	F	3	15.0	0.	2.0			R	SUGGESTED M = ANY
O3 1959	F	3	16.267 (0.023)			293	O2 DISCH-FLOW SYST (O) BY HEAT PROBE	X	M = O2 AR HE
	F	3	16.30 (0.04)			294		X	M = CO2
	F	3	16.310 (0.041)			279		X	M = O2 AR HE
	F	3	16.36 (0.04)			213		X	M = CO2
S1 1967	F	3	15.16	0.	-1.93	307-505		R	RECOMMENDED VALUE VALUE OF K14
S20 1970	F	3	16.690			300	STATIC REACTOR O BY PHOTODISSOC. ATOMIC RES FLUORESC	X	M = AR
W13 1964	F	3	16.46			300	O2 DISCH-FLOW SYST	X	M = O2
B19 1963	A	2	21.72 (1.0)	-1.0	70.5			R	M = ANY
B20 1964	A	2	21.83	-1.5	71.4			R	SELECTED (REF L4) BASED ON M6

318. NO + O + M = NO2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B34 1961	R	II	18.34	0.	72.			R	M = ANY
B53 1970	R	2	16.05 (0.1)	0.	65. (1.5)	1400-2300		R	EVALUATION; EXPRESSION OF T4 M = AR
B85 1973	R	2	24.51	-2.5	74.6	200-4000		C	FROM REVERSE
B90 1973	R	2	16.04 (0.10)	0.	65.0 (1.5)	1400-2400		R	EVALUATION EXPRESSION OF REF T4 M = AR
D9 1958	R	2	18.28	0.	72.			R	FROM REVERSE
G20 1974	R	2	16.04 (0.1)	0.	65.6	1400-2400		R	PREFERRED VALUE EVALUATION
G21 1973	R	2	16.04 (0.1)	0.	65.6	1400-2400		R	M = AR EVALUATION RATE OF REF T4
H4 1959	R	2	16.18	0.	65.4	1750-2300	SHOCK TUBE NO2/AR (NO2) BY ABSORPTION	X	M = AR
H8 1963	R	2	7.934			1830	SHOCK TUBE NO2/AR (NO2) BY EMISSION	X	M = AR
	R	2	7.980			1850		X	
	R	2	8.279			1910		X	
	R	2	8.362			1915		X	
	R	2	8.541			1945		X	
	R	2	8.744			2050		X	
	R	2	8.789			2100		X	
	R	2	9.009			2180		X	
	R	2	9.076			2200		X	
	R	2	9.264			2200		X	
H8 1963	R	2	16.072	0.	65.9	1830-2200	SHOCK TUBE NO2/AR (NO2) BY EMISSION	X	M = AR
	R	2	21.669	-1.5	72.0	1830-2200		X	ALTERNATE EXPRESSION BASED ON RRK
T4 1969	R	2	16.05	0.	65.0	1450-2000	SHOCK TUBE NO2/AR (NO2) BY ABSORPTION	X	M = AR LOW PRESSURE LIMIT
T4 1969	R	1	14.3 (0.3)	0.	71.86	1450-2000		X	HIGH PRESSURE LIMIT FIRST ORDER K SET ACT EN=DISSN EN
T5 1969	R	1	13.11			295	PHOTOLYSIS NO2/NO/N2	X	HIGH PRESSURE LIMIT UNIMOLECULAR DISSN

319. NO + O2 + NO2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	2	12.04 (1.0)	0.	54.			R	
B20 1964	F	2	11.89	0.	45.4			R	SELECTED (REF D9)
B34 1961	F	2	12.38	0.	44.			R	
B53 1970	F	2	12.0 (1.)	0.	45.5 (1.5)			R	SURVEY CALC FROM REVERSE NO DIRECT DATA
B90 1973	F	2	12.23	0.	46.5	300-550		R	FROM REVERSE
B19 1963	R	2	12.5 (1.0)	0.	8.			R	
B26 1963	R	2	12.5			300		R	RECALCULATED RESULTS OF REF F19 USING NEW O ATOM ENTHALPY
B27 1965	R	2	13.3 (0.5)	0.	1.1			R	EVALUATION
B34 1961	R	2	12.18	0.	0.			R	
B37 1964	R	2	12.5 (0.5)	0.	0.			R	
B53 1970	R	2	13.00 (0.1)	0.	0.6 (0.2)	280-550		R	EVALUATION
B90 1973	R	2	13.00 (0.10)	0.	0.6 (0.2)	300-550		R	EVALUATION
D9 1958	R	2	12.32	0.	0.	298		R	SELECTED (REF F19)
D28 1973	R	2	12.74 (0.02)	0.	0.	230-339	FLASH PHOTOLYSIS-RESONANCE FLUORESC	X	TRIPLET O
F7 1965	R	2	12.26			300		R	SELECTED
F15 1966	R	2	12.3			298	SHOCK TUBE WITH FLASH PHOTOLYSIS MASS SPEC ANALYSIS	X	STUDY OF TECHNIQUE FEASIBILITY
	R	2	12.81			1035		X	
F19 1957	R	2	15.32			300	PHOTOLYSIS OF NO2 STIRRED FLOW REACTOR	X	
G20 1974	R	2	12.74 (0.06)	0.	0.	230-550		R	PREFERRED VALUE EVALUATION
H3 1959	R	2	11.8			300		R	SELECTED
H16 1957	R	2	9.8 (0.3)			340	DECOMP NO INITIATED BY U235 FISSION	X	TEMP UNCERTAIN GREATER THAN 340 K
H38 1973	R	2	12.74 (0.08)	0.	0.	220-500		R	RECOMMENDED RATE EVALUATION
K13 1957	R	2	12.0			300	N2 DISCH-FLOW SYST MASS SPEC	X	LOWER LIMIT
K14 1964	R	2	13.290 (0.110)	0.	1.06 (0.20)	278-374	O2/AR DISCH-FLOW SYS (O) BY NO2 MEASURE	X	
K45 1970	R	2	13.29 (0.45)	0.	1.16 (0.64)	280-410		R	SUGGESTED
N6 1964	R	2	11.98	0.5	1.0			R	SUGGESTED
P5 1962	R	2	12.18 (0.09)			298	O2 DISCH-FLOW SYST MASS SPEC ANALYSIS (O) BY NO2 TITRATION	X	

319. NO + O2 = NO2 + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
S1 1967	R	2	13.28	0.	1.06	278-374		R	RECOMMENDED VALUE BASED ON K14, K15
S17 1968	R	2	12.53 (0.11)			298	FLASH PHOTOLYSIS NO2/CS2/AR MIXTURES PYREX SYSTEM	X	
	R	2	12.67 (0.10)			410		X	
S31 1973	R	2	12.75			296	O FROM O2 PHOTOLYSIS (O) BY CHEMILUMINESC	X	TRIPLET O
	R	2	12.80			240		X	
T1 1967	R	2	13.3	0.	1.1			R	SELECTED (REF K14)
W12 1969	R	2	12.62 (0.04)			297	O2/HE DISCH-FLOW SYS ESR ANALYSIS	X	
	R	2	12.72			428		X	
	R	2	12.78			434		X	
	R	2	12.81			437		X	
	R	2	12.65			532		X	
	R	2	12.72 (0.03)			543		X	
W12 1969	R	2	13.00	0.	0.58	297-543	O2/HE DISCH-FLOW SYS ESR ANALYSIS	X	

320. N2 + O + M + N2O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	3	14.86 (1.0)	0.	12.			R	M = ANY
B27 1965	F	3	14.9 (2.0)	0.	40.			R	M = ANY
B37 1964	F	3	15.9	0.	12.			R	M = ANY
B84 1965	F	3	14.6	0.	14.9			R	SELECTED PROBABLY UPPER LIMIT
B90 1973	F	3	13.15 (0.15)	0.	20.7 (3.0)	1300-2500		R	FROM REVERSE M = AR
	F	3	13.70 (0.15)	0.	21.3 (3.0)	900-1050		R	FROM REVERSE M = N2O
D9 1958	F	3	17.73	-1.0	23.			R	FROM REVERSE
G20 1974	F	3	13.15 (0.2)	0.	20.7	1300-2500		R	FROM REVERSE PREFERRED VALUE M = AR
G20 1974	F	2	9.5 (0.2)	0.	22.51	900-2100		R	FROM REVERSE PREFERRED VALUE HIGH PRESSURE LIMIT
L3 1961	F	3	17.73	-1.0				R	SELECTED (D9)
N5 1969	F	3	13.260	0.	21.4			R	FROM REVERSE
S30 1972	F	3	10.3	0.	0.	300-568		R	EVALUATION M = N2 APPROXIMATE VALUE LIMITED DATA
B19 1963	R	2	19.45 (1.0)	-1.0	51.3			R	M = ANY
B44 1968	R	2	14.3	0.	53.5	1900-2300	SHOCK TUBE N2O/NE (N2O),(N2),(O2),(NO) BY MASS SPEC ANALYS	X	
B75 1968	R	2	14.3	0.	53.9	1800-2300	N2O DISS REFLECT SHK N2O,N2,O2,NO-M SPEC	X	
B90 1973	R	2	14.70 (0.15)	0.	58.0 (3.0)	1300-2500		R	EVALUATION M = AR
	R	2	15.43 (0.15)	0.	59.2 (3.0)	900-1050		R	EVALUATION M = N2O
D9 1958	R	2	21.72	-2.0	62.			R	SELECTED (REF J7) POSSIBLE MISPRINT PROBABLY A=22.32
G20 1974	R	2	14.70 (0.2)	0.	57.6	1300-2500		R	PREFERRED VALUE M = AR
G20 1974	R	1	11.11 (0.2)	0.	59.6	900-2100		R	PREFERRED VALUE HIGH PRESSURE LIMIT
L3 1961	R	2	22.32	-2.0	62.0			R	SELECTED (D9)
L14 1973	R	2	13.1 (0.3)	0.	44.1 (2.1)	1300-1950	SINGLE PULSE SHOCK THERMAL DECOMP N2O CHROMATOGRAPHIC ANAL	X	M = KR ASSUME 3-STEP MECH
N5 1969	R	2	15.0	0.	61.0			R	SELECTED (N10)
S30 1972	R	2	14.67 (0.10)	0.	58.0	1500-2500		R	EVALUATION M = AR
	R	2	13.40 (0.18)	0.	43.6	1500-2600		R	EVALUATION M = NE
	R	2	12.86 (0.30)	0.	40.7	1750-2800		R	EVALUATION M = KR
	R	2	15.45 (0.48)	0.	59.4	850-1050		R	EVALUATION M = N2O

320. N2 + O + M = N2O + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
S30 1972	R	1	11.15 (0.18)	0.	59.5	800-2100		R	EVALUATION HIGH PRESSURE LIMIT
S36 1973	R	2	14.67	0.	58.0	1400-3000	INCIDENT SHOCK N2O/AR MIX (N2O) BY IR EMISSION	X	LITERATURE VALUES FIT EXPTL DATA

321. N2 + O2 + N2O + O

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
B19 1963	F	2	12.60 (1.0)	0.	105.7			R	
B20 1964	F	2	9.60	0.	93.0			R	SELECTED (REF D9)
B34 1961	F	2	10.6	0.	72.			R	
B90 1973	F	2	13.78 (0.4)	0.	109.7	1200-2000		R	FROM REVERSE NO EXPERIMENTAL DATA
B90 1973	F	2	13.80 (0.35)	0.	110. (4.)	1200-2000		R	FROM REVERSE
G20 1974	F	2	13.78 (0.4)	0.	109.7	1200-2000		R	PREFERRED VALUE EVALUATION
G21 1973	F	2	13.78 (0.4)	0.	109.7	1200-2000		R	PREFERRED VALUE NO XPTL DATA RATE FROM REVERSE
L3 1961	F	2	9.6	0.	93.2			R	SELECTED (D9)
T1 1967	F	2	12.6	0.	106.			R	SELECTED (REF B19)
B19 1963	R	2	13.5 (1.0)	0.	26.8			R	
B27 1965	R	2	13.5 (1.0)	0.	26.8			R	
B34 1961	R	2	13.5	0.	27.			R	
B37 1964	R	2	13.5 (1.0)	0.	27.			R	
B43 1961	R	2	8.90 (0.19)			1906	SHOCK TUBE N2O DECOMP ANALBY MASS SPEC	X	VALVE IS 1/4 OF REPORTED K FOR N2O+O =N2+O2 AND NO+NO
B44 1968	R	2	13.20	0.	25.	1800-2300	SHOCK TUBE N2O/NE (N2O),(N2),(O2),(NO) BY MASS SPEC ANALYS	X	K(N2O+O=NO+NO) SAME AS K(N2O+O=N2+O2)
B75 1968	R	2	13.20	0.	25.0	1800-2300	N2O DISS REFLECT SHK N2O,N2,O2,NO-M SPEC	X	
B90 1973	R	2	14.00 (0.35)	0.	28. (4.)	1200-2000		R	EVALUATION RATE SET EQUAL TO N2O + O = NO + NO
D9 1958	R	2	10.5	0.	14.5			R	SELECTED (REF K19)
G20 1974	R	2	14.01 (0.4)	0.	28.0	1200-2000		R	PREFERRED VALUE RATE SET EQUAL TO N2O + O = NO + NO
G21 1973	R	2	14.01 (0.1)	0.	28.0	1200-2000		R	PREFERRED VALUE RATE SET EQUAL TO N2O + O = NO + NO
K19 1956	R	2	7.23				STATIC SYSTEM N2O DECOMPOSITION NO BY SPECTROPHOTOM	X	
K19 1956	R	2	10.5	0.	14.5 (2.0)			X	ESTIMATE ACT ENERGY
L3 1961	R	2	10.5	0.	14.5			R	SELECTED (D9)
L14 1973	R	2				1300-1950	SINGLE PULSE SHOCK THERMAL DECOMP N2O CHROMATOGRAPHIC ANAL	X	K(N2O+O=NO+NO/N2+O2) +0.5 (0.2) ASSUME 3-STEP MECH
M26 1973	R	2				1169-1655	SINGLE PULSE SHOCK O2,N2,NO,CO,AR,CO2, N2O BY GC	X	K(N2O+O=NO+NO)/K + 0.317 (0.27)
	R	2	13.65	0.	26.1	1400-5000	INCIDENT SHOCK N2O/AR MIX (N2O) BY IR EMISSION	X	LITERATURE VALUES FIT EXPTL DATA

322. O + O + M + O2 + M

REF	DIR	ORD	A	b	C	T	EXPERIMENTAL	TYP	COMMENTS
413 1961	F	3	15.00	0.	0.	2000-6000		R	M = O FROM REVERSE
	F	3	18.061	-1.	0.	2000-6000		R	M = O2 FROM REVERSE
	F	3	17.270	-1.	0.	2000-6000		R	M = N2,NO,N FROM REVERSE
813 1965	F	3	14.67 (0.09)	0.	-0.50 (0.25)	300-10000		R	EVALUATION M = N2
	F	3	14.67 (0.09)	0.	-0.50 (0.25)	300-10000		R	EVALUATION M = O2
	F	3	15.06 (0.09)	0.	-0.50 (0.25)	300-10000		R	EVALUATION M = O
819 1963	F	3	16.28 (0.3)	-0.5	0.			R	M = O2
	F	3	16.85 (0.4)	-0.5	0.			R	M = O
	F	3	15.40 (1.0)	-0.5	0.			R	M = ANY
827 1965	F	3	16.3 (0.2)	-0.5	0.			R	M = O2
	F	3	16.3 (0.2)	-0.5	0.			R	M = N2
	F	3	16.9 (1.0)	-0.5	0.			R	M = O
	F	3	15.4 (1.0)	-0.5	0.			R	M = AR
834 1961	F	3	16.34	-0.5	0.			R	M = O2
	F	3	16.86	-0.5	0.			R	M = O
	F	3	15.54	-0.5	0.			R	M = AR,N2,N,NO
837 1964	F	3	16.3 (0.5)	-1.5	0.			R	M = O2
	F	3	16.9 (0.5)	-1.5	0.			R	M = O
	F	3	15.4 (0.5)	-1.5	0.			R	M = ALL OTHER
C1 1967	F	3	16.28 (1.0)	-0.5	0.			R	BASED ON XPTL DATA M = ANY
C8 1968	F	3	15.90 (0.03)			196	N2 DISCH-FLOW SYST METHOD AS IN REF C15	X	20-50PCT N2 ADDED TO ACTIVE N2 M = N2
C15 1967	F	3	14.00	0.	-1.42 (0.35)	196-327	N2 DISCH-FLOW SYST O-ATOMS FROM N+NO	X	(O) BY NO EMISSION M = N2
C15 1967	F	3	14.96 (0.01)			327	N2 DISCH-FLOW SYST O-ATOMS FROM N+NO	X	(O) BY NO EMISSION M = N2
	F	3	15.093 (0.040)			298		X	M = N2
	F	3	15.167 (0.031)			274		X	M = N2
	F	3	15.595 (0.035)			196		X	M = N2
	F	3	14.78 (0.04)			298		X	M = AR

322. O + O + M + O2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
	F	3	14.66 (0.04)			298		X	M = HE
	F	3	15.338 (0.052)			196		X	M = AR
D16 1959	F	3	14.5	0.	0.		SHOCK TUBE DISSOC OF AIR	X	SELECTED VALUE COMPARED WITH EXPT
F5 1963	F	3	15.0	0.	0.			R	APPROXIMATE
G20 1974	F	3	18.14 (0.3)	-1.	0.34	1000-8000		R	M = O2 PREFERRED VALUE BASED ON REF J4
H2 1967	F	3	14.5 (0.5)	0.	0.	298-5973		R	SURVEY M = N2, AR, O2, O
J1 1967	F	3	18.6 (1.0)	-1.0	0.	1000-3500		R	EVALUATION M = ANY
J4 1968	F	3	17.106 (0.3)	-1.0	0.34	300-15000		R	EVALUATION M = AR
	F	3	18.139 (0.3)	-1.0	0.34	1000-8000		R	EVALUATION M = O2
K3 1964	F	3	13.34	0.	0.			R	EVALUATION M = AR
	F	3	14.30	0.	0.			R	EVALUATION M = O2
	F	3	14.74	0.	0.			R	EVALUATION M = O
K43 1960	F	3	14.3			350	STATIC DISCHARGE ND + O AFTERGLOW	X	M = O2
K44 1965	F	3	18.911 (0.033)	-1.22	0.	1500-2800	SHOCK TUBE STUDY X-RAY DENSITOMETRY O3/O2/AR/KR MIX	X	M = O2
K44 1965	F	3	14.95			1486	SHOCK TUBE STUDY X-RAY DENSITOMETRY O3/O2/AR MIX	X	M = O2
	F	3	14.67			1525	O3/O2/AR MIX	X	M = O2
	F	3	15.15			1545	O3/O2/AR MIX	X	M = O2
	F	3	15.00			1784	O3/O2/AR MIX	X	M = O2
	F	3	14.89			1843	O3/O2/AR MIX	X	M = O2
	F	3	14.56			2321	O3/O2/AR MIX	X	M = O2
	F	3	14.64			2511	O3/O2/AR MIX	X	M = O2
	F	3	14.62			2822	O3/O2/AR MIX	X	M = O2
	F	3	14.86			1799	O3/O2/KR MIX	X	M = O2
	F	3	14.89			1919	O3/O2/KR MIX	X	M = O2
	F	3	14.99			2107	O3/O2/KR MIX	X	M = O2
	F	3	14.83			2119	O3/O2/KR MIX	X	M = O2
	F	3	14.82			2251	O3/O2/KR MIX	X	M = O2

322. 0 • O • M • O2 • M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
	F	3	14.89			2255	O3/O2/KR MIX	X	M • O2
	F	3	14.91			2571	O3/O2/KR MIX	X	M • O2
K45 1970	F	3	17.41 (0.33)	-0.93	0.	300-7500		R	SUGGESTED M • N2
	F	3	15.99 (0.35)	-0.41	0.	300-6000		R	SUGGESTED M • O2
	F	3	15.56 (0.20)	-0.64	0.	300-5000		R	SUGGESTED M • AR
M7 1959	F	3	14.92			3500		X	M • O2 FROM REVERSE
M18 1961	F	3	16.02			300	N2 DISCH-FLOW SYST (N) BY NO TITR	X	
M22 1963	F	3	15.01 (0.06)			293	DISCHARGE-FAST FLOW O2 FREE CONDENSIBLES REMOVED	X	M • N2
	F	3	14.51			293		X	M • AR UPPER LIMIT
	F	3	14.51 (0.06)			293		X	M • HE
	F	3	15.15 (0.06)			293		X	M • N2O
	F	3	15.48 (0.06)			293		X	M • CO2
	F	3	15.48 (0.06)			293		X	M • SF6
M23 1962	F	3	15.21 (0.08)			300	DISCHARGE-FLOW SYST ESR ATOM DETECTION	X	M • O2
	F	3	15.12 (0.08)			300		X	M • AR
M3 1964	F	3	15.0 (0.1)	0.	0.			R	SUGGESTED
M8 1962	F	3	16.9 (0.1)	-1.0	0.	3500-5500	SHOCK TUBE STUDY X-RAY DENSITOMETRY	X	M • AR 1/T DEPEND. ASSUMED FROM REVERSE
	F	3	17.20 (0.10)	-1.0	0.	3500-5500		X	M • KR 1/T DEPEND. ASSUMED FROM REVERSE
	F	3	17.67 (0.06)	-1.0	0.	3500-5500		X	M • XE 1/T DEPEND. ASSUMED FROM REVERSE
M9 1960	F	3	14.99 (0.04)			300	DISCHARGE FLOW SYST (O) BY TITRATION AND AFTERGLOW	X	M • AR
M10 1961	F	3	17.67	-1.0	0.	3000-6000	SHOCK TUBE STUDY X-RAY DENSITOMETRY	X	M • XE 1/T DEPEND. ASSUMED FROM REVERSE
	F	3	18.20	-1.0	0.	3000-6000		X	M • O2 1/T DEPEND. ASSUMED FROM REVERSE
	F	3	18.68	-1.0	0.	3000-6000		X	M • O 1/T DEPEND. ASSUMED FROM REVERSE
S35 1972	F	3	13.431	0.	0.	1300-2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/N2/AR MIXES	R	M • AR 23 RX MECH LIT RATES VARIED WITHIN ERROR LIMITS
M17 1960	F	3	20.5	-1.5	0.	4500-7500	SHOCK TUBE N2/O2 MIX	R	BEST FIT TO RPT DATA M • O
	F	3	19.8	-1.5	0.	4500-7500		R	BEST FIT TO RPT DATA M • O2
	F	3	19.1	-1.5	0.	4500-7500		R	BEST FIT TO RPT DATA M • AR,N,N2,NO

322. O + O + M + O2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
W34 1965	F	3	13.4			2000	SHOCK TUBE STUDY DILUTE O3/AR MIX	X	M = AR
W36 1963	F	3	14.97 (0.08)			2700	PRANDTL-MEYER EXPANS SHOCK-HEATED GAS	X	M = O2
A13 1961	R	2	18.110	-0.5	118.0	2000-6000		R	M = O FROM EXPTL VALUE
	R	2	21.164	-1.5	118.0	2000-6000		R	M = O2 FROM EXPTL VALUE
	R	2	20.374	-1.5	118.0	2000-6000		R	M = N2,NO,N AVG TWO VALUES
B13 1965	R	2	15.941 (0.094)	0.	118.6 (0.25)	300-10000		R	EVALUATION M = N2
	R	2	15.941 (0.094)	0.	118.6 (0.25)	300-15000		R	EVALUATION M = O2
	R	2	16.32 (0.09)	0.	118.6 (0.25)	300-10000		R	EVALUATION M = O
B19 1963	R	2	19.36 (0.3)	-1.0	118.			R	M = O2
	R	2	19.93 (0.4)	-1.0	118.			R	M = O
	R	2	18.48 (1.0)	-1.0	118.			R	M = ANY
B34 1961	R	2	17.74	-0.5	118.6			R	M = O2
	R	2	18.262	-0.5	118.6			R	M = O
	R	2	16.942	-0.5	118.6			R	M = AR,N2,N,NO
B56 1964	R	2	25.057	-2.5	118.			R	BASED ON XPTL DATA M = ANY REF M7
	R	2	18.56	-1.	118.			R	BASED ON XPTL DATA M = AR REF M7
	R	2	18.86	-1.	118.			R	BASED ON XPTL DATA M = N2 REF M7
	R	2	18.56	-1.	118.			R	BASED ON XPTL DATA M = NO REF M7
	R	2	18.56	-1.	118.			R	BASED ON XPTL DATA M = N REF M7
	R	2	19.51	-1.	118.			R	BASED ON XPTL DATA M = O2 REF M7
	R	2	19.96	-1.	118.			R	BASED ON XPTL DATA M = O REF M7
C19 1967	R	2	18.86	-1.0	118.	2300-6000	SHOCK TUBE (O) BY CHEMILUMINESC	X	M = N2
	R	2	19.52	-1.0	118.	2300-6000	SHOCK TUBE (O) BY CHEMILUMINESC	X	M = O2
C20 1961	R	2	18.55 (0.08)	-1.0	118.0	3300-7500	SHOCK TUBE O2/AR MIX UV ABSORPTION	X	M = AR
	R	2	19.95 (0.08)	-1.0	118.0	6000-7000		X	M = O2 RELATIVE TO AR
	R	2	19.03 (0.08)		118.0	5000-7500		X	M = O RELATIVE TO AR UPPER LIMIT
E3 1962	R	2	21.551	-1.5	118.0			R	SELECTED M = O2

322. O + O + M + O2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
	R	2	18.32	-0.5	118.0			R	SELECTED M = O
	R	2	21.076	-1.5	118.0			R	M = N2 EFFIC N2 ASSUMED 1/3 OF O2
F5 1963	R	2	13.8	0.	117.			R	SUGGESTED
M2 1967	R	2	16.0	0.	118.	2773- 4973		R	SURVEY M = O2
	R	2	16.5	0.	118.	2773- 4973		R	M = O
	R	2	16.40	-0.5	118.	2773- 17973		R	M = AR
J4 1968	R	2	18.406 (0.3)	-1.0	118.7	300- 15000		R	EVALUATION M = AR
	R	2	19.440 (0.3)	-1.0	118.7	1000- 8000		R	EVALUATION M = O2
K3 1964	R	2	16.40	-0.5	117.9			R	EVALUATION M = AR
	R	2	17.34	-0.5	117.9			R	BASED ON XPTL DATA M = O2 REF M7, W8
	R	2	17.79	-0.5	117.9			R	BASED ON XPTL DATA M = O
K38 1968	R	2	18.38	-1.0	118.0	5000- 18000		R	M = AR RECOMMENDED-REF W33
	R	2	24.98	-2.5	118.0	2600- 8000		R	M = O2 RECOMMENDED-REF K39
K45 1970	R	2	18.05	-0.5	118.0	2800- 5000		R	RECOMMENDED M = O
K45 1970	R	2	25.36 (1.36)	-2.6	118.0	2600- 7000		R	SUGGESTED M = O2
M7 1959	R	2	25.05	-2.5	118.0	3000- 5000	SHOCK TUBE STUDY	X	M = O2 CALC EFFIC BASED ON COLLISION THEORY
M19 1966	R	2	19.41	-1.0	118.0			C	CALCULATED VALUE M = ANY
S33 1972	R	2	15.477	0.	124.2	1300- 2500	IGNITION DELAY STUDY SINGLE PULSE SHOCK CH4/O2/H2/AR MIXES	X	M = AR 23 RX MECH LIT RATES VARIED WITHIN ERROR LIMITS
T1 1967	R	2	18.5	-1.0	118.			R	SELECTED (REF B19) M = ANY
	R	2	19.3	-1.0	118.			R	SELECTED (REF B19) M = O2
	R	2	19.93	-1.0	118.			R	SELECTED-REF B19, W8 M = O
V6 1961	R	2	25.049	-2.50	117.			R	SELECTED (REF M7) M = O2
	R	2	21.996	-1.50	117.			R	SELECTED ASSUMED EFFIC M = O
	R	2	25.049	-2.50	117.			R	SELECTED EFFIC=O2 M = N, N2, NO
W24 1969	R	2	11.267 (0.057)	0.5	95.7	2850- 5550	SHOCK TUBE STUDY O2/AR MIX ATOMIC RES ABS SPECT	X	M = AR
W33 1963	R	2	16.40 (0.06)	-0.5	118.0	1340- 2920	SHOCK TUBE STUDY DILUTE O3/AR MIX	X	M = AR EXPRESSION FITS DATA FROM 5000-18000K
W34 1965	R	2	16.40 (0.06)	-0.5	118.0	5000- 18000	SHOCK TUBE STUDY O2/AR MIX	X	M = AR

322. O + O + M = O2 + M

REF	DIR	ORD	A	B	C	T	EXPERIMENTAL	TYP	COMMENTS
W35 1962	R	2	14.46 (0.05)	0.	118.0	5000-11000	SHOCK TUBE STUDY O2/AR MIX	X	M = AR DEVIATES FROM GIVEN EXPRESS. ABOVE 11000

6. EVALUATION OF PROBABLE RELATIVE REACTION IMPORTANCE

This section contains a reaction-by-reaction evaluation of the potential importance of each of the 322 reactions considered in this study. It is extremely important to understand the groundrules for the evaluation and scope of its applicability. The comments found in this section refer only to the combustion of methane-air from 80-125% stoichiometric air, from 1500-2500K. This has been stated elsewhere in this report, but bears repeating. The use of the information in this section outside the limits mentioned, may be valid, but should be approached with caution. Not only would the relative importance of the given reactions require evaluation for specific conditions but other species and, therefore, additional reactions might have to be considered outside those limits. And of course, other reaction systems such as higher hydrocarbons of fuel-nitrogen containing systems would bear their own evaluations.

The headings in this section are as follows:

Headings	Description
REACTION	Written in both directions Reaction number indicated F = Forward R = Reverse
HR	ΔH_r for both directions given at 2000K (mid-range of 1500-2500K) note: in the thermochemical tables ΔH_{r298} is used in the expression for log K_c
NOTES	A Probably important B Possibly important C Probably unimportant * Flag indicating reaction was rated either A or B. This flag emphasizes that both A and B reactions should be considered in initial screening
COMMENTS	Notes explaining reasons for ranking

REACTION	HR	NOTES	COMMENTS
1F. CH + CHN = CH2 + CN	20.3	B *	CONSIDER BOTH DIRECTIONS, FUEL RICH
1R. CH2 + CN = CH + CHN	-20.3	B *	POSSIBLE ROLE CN/HCN
			PROBABLY MINOR
2F. CH + CHO = CH2 + CO	-85.5	C	FORWARD UNIMPORTANT FOR CHO REMOVAL
2R. CH2 + CO = CH + CHO	85.5	C	H, O, HO MORE LIKELY REACTION PARTNERS
			REVERSE ENDOTHERMIC
3F. CH + CH2O = CHO + CH2	-15.6	C	CH, CH2 MINOR RX PARTNERS FOR CHO, CH2O
3R. CHO + CH2 = CH + CH2O	15.6	C	
4F. CH + CH2O = CH3 + CO	-108.6	C	CH MINOR RX PARTNER FOR CH2O
4R. CH3 + CO = CH + CH2O	108.6	C	REVERSE HIGHLY ENDOTHERMIC
5F. CH + CH3 = CH2 + CH2	7.4	C	(CH)(CH3) AND (CH2)(CH2) LIKELY SMALL
5R. CH2 + CH2 = CH + CH3	-7.4	C	POSSIBLE FUEL RICH
6F. CH + CH3O = CHO + CH3	-102.7	C	LOW CONCENTRATIONS FORWARD
6R. CHO + CH3 = CH + CH3O	102.7	C	REVERSE HIGHLY ENDOTHERMIC
7F. CH + CH3O = CH2 + CH2O	-79.6	C	LOW CONCENTRATIONS FORWARD
7R. CH2 + CH2O = CH + CH3O	79.6	C	REVERSE ENDOTHERMIC
8F. CH + CH3O = CH4 + CO	-191.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
8R. CH4 + CO = CH + CH3O	191.3	C	
9F. CH + CH4 = CH2 + CH3	3.0	B *	CONSIDER BOTH DIRECTIONS, FUEL RICH
9R. CH2 + CH3 = CH + CH4	-3.0	B *	CH4 STARTING MATL, CH3 INITIAL INTERMED
			THERMALLY NEUTRAL
10F. CH + CO2 = CHO + CO	-68.3	B *	CONSIDER FORWARD, FUEL RICH
10R. CHO + CO = CH + CO2	68.3	C	(CO2) HIGH, PATH FROM CH TO CO
			REVERSE ENDOTHERMIC

REACTION	HR	NOTES	COMMENTS
11F. CH + H + M = CH2 + M	-105.1	C	THIRD ORDER, LOW CONC IN FORWARD
11R. CH2 + M = CH + H + M	105.1	C	REVERSE HIGHLY ENDOTHERMIC
12F. CH + HN = CHN + H	-145.4	C	LOW CONCENTRATIONS FORWARD
12R. CHN + H = CH + HN	145.4	C	HIGHLY ENDOTHERMIC REVERSE
13F. CH + HN = CH2 + N	-26.2	C	LOW CONCENTRATIONS BOTH DIRECTIONS
13R. CH2 + N = CH + HN	26.2	C	
14F. CH + HN = CN + H2	-128.4	C	LOW CONCENTRATIONS FORWARD
14R. CN + H2 = CH + HN	128.4	C	REVERSE HIGHLY ENDOTHERMIC FOUR-CENTER REACTION
15F. CH + HNO = CHN + HO	-123.8	C	FORWARD POSSIBLE FOR NOH STRUCTURE
15R. CHN + HO = CH + HNO	123.8	C	CONCENTRATIONS LOW REVERSE HIGHLY ENDOTHERMIC
16F. CH + HNO = CHO + HN	-67.8	C	LOW CONCENTRATIONS BOTH DIRECTIONS
16R. CHO + HN = CH + HNO	67.8	C	REVERSE ENDOTHERMIC
17F. CH + HNO = CH2 + NO	-52.4	C	LOW CONCENTRATIONS FORWARD
17R. CH2 + NO = CH + HNO	52.4	C	CH2 + NO = CH2O + N MORE LIKELY REVERSE
18F. CH + HNO = CH2O + N	-78.4	C	LOW CONCENTRATIONS FORWARD
18R. CH2O + N = CH + HNO	78.4	C	REVERSE ENDOTHERMIC
19F. CH + HNO = CN + H2O	-121.7	C	LOW CONCENTRATIONS FORWARD
19R. CN + H2O = CH + HNO	121.7	C	REVERSE HIGHLY ENDOTHERMIC FOUR-CENTER REACTION FOR NOH STRUCTURE
20F. CH + HO = CHO + H	-89.4	B *	CONSIDER FORWARD
20R. CHO + H = CH + HO	89.4	C	REVERSE ENDOTHERMIC

REACTION	HR	NOTES	COMMENTS
21F. CH + HO = CH2 + O	1.2	C	CH + HO = CHO + H MORE LIKELY FORWARD
21R. CH2 + O = CH + HO	-1.2	C	CH2 + O = CHO + H MORE LIKELY REVERSE
22F. CH + HO + M = CH2O + M	-178.9	C	THIRD ORDER, LOW CONCENTRATION FORWARD
22R. CH2O + M = CH + HO + M	178.9	C	REVERSE HIGHLY ENDOTHERMIC NOT LIKELY TO BE ELEMENTARY REACTION
23F. CH + HO = CO + H2	-178.3	C	FOUR-CENTER REACTION
23R. CO + H2 = CH + HO	178.3	C	CH + HO = CHO + H MORE LIKELY FORWARD REVERSE HIGHLY ENDOTHERMIC
24F. CH + HO2 = CHO + HO	-129.6	C	H-O2 WEAKER THAN HO-O
24R. CHO + HO = CH + HO2	129.6	C	CH + HO2 = CH2 + HO2 MORE LIKELY FORWARD REVERSE HIGHLY ENDOTHERMIC
25F. CH + HO2 = CH2+ O2	-54.7	B *	CONSIDER FORWARD
25R. CH2+ O2 = CH + HO2	54.7	C	REVERSE ENDOTHERMIC
26F. CH + HO2 = CH2O + O	-112.8	C	NOT LIKELY TO BE ELEMENTARY REACTION
26R. CH2O + O = CH + HO2	112.8	C	
27F. CH + HO2 = CO + H2O	-233.4	C	FOUR-CENTER REACTION
27R. CO + H2O = CH + HO2	233.4	C	CH + HO2 = CH2 + O2 MORE LIKELY FORWARD REVERSE HIGHLY ENDOTHERMIC
28F. CH + HO2 = CO2 + H2	-239.7	C	NOT LIKELY TO BE ELEMENTARY REACTION
28R. CO2 + H2 = CH + HO2	239.7	C	
29F. CH + H2 = CH2 + H	3.4	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
29R. CH2 + H = CH + H2	-3.4	B *	
30F. CH + H2 + M = CH3 + M	-109.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
30R. CH3 + M = CH + H2 + M	109.2	C	

REACTION	HR	NOTES	COMMENTS
31F. CH + H2O = CHO + H2	-74.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
31R. CHO + H2 = CH + H2O	74.5	C	
32F. CH + H2O = CH2+ HO	18.2	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
32R. CH2+ HO = CH + H2O	-18.2	B *	
33F. CH + H2O = CH2O + H	-55.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
33R. CH2O + H = CH + H2O	55.6	C	
34F. CH + H2O = CH3 + O	12.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
34R. CH3 + O = CH + H2O	-12.0	C	
35F. CH + H2O + M = CH3O + M	-81.1	C	NOT LIKELY TO BE ELEMENTARY REACTION
35R. CH3O + M = CH + H2O + M	81.1	C	
36F. CH + N + M = CHN + M	-224.3	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD
36R. CHN + M = CH + N + M	224.3	C	REVERSE HIGHLY ENDOTHERMIC
37F. CH + N = CN + H	-98.9	C	LOW CONCENTRATIONS FORWARD
37R. CN + H = CH + N	98.9	C	REVERSE HIGHLY ENDOTHERMIC
38F. CH + NO = CHN + O	-70.2	B *	CONSIDER FORWARD FUEL RICH
38R. CHN + O = CH + NO	70.2	C	REVERSE ENDOTHERMIC
39F. CH + NO = CHO + N	-41.6	B *	CONSIDER FORWARD FUEL RICH
39R. CHO + N = CH + NO	41.6	C	REVERSE ENDOTHERMIC
40F. CH + NO = CN + HO	-51.1	C	FOUR-CENTER REACTION
40R. CN + HO = CH + NO	51.1	C	

REACTION	HR	NOTES	COMMENTS
41F. CH + NO = CO + HN	-101.0	C	FOUR-CENTER REACTION
41R. CO + HN = CH + NO	101.0	C	
42F. CH + NO2 = CHN + O2	-117.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
42R. CHN + O2 = CH + NO2	117.5	C	
43F. CH + NO2 = CHO + NO	-121.0	C	LOW CONCENTRATIONS FORWARD
43R. CHO + NO = CH + NO2	121.0	C	REVERSE HIGHLY ENDOTHERMIC
44F. CH + NO2 = CN + HO2	-42.4	C	NOT LIKELY TO BE ELEMENTARY REACTION
44R. CN + HO2 = CH + NO2	42.4	C	
45F. CH + NO2 = CO + HNO	-154.1	C	LOW CONCENTRATIONS FORWARD
45R. CO + HNO = CH + NO2	154.1	C	REVERSE HIGHLY ENDOTHERMIC
46F. CH + NO2 = CO2 + HN	-153.7	C	NOT LIKELY TO BE ELEMENTARY REACTION
46R. CO2 + HN = CH + NO2	153.7	C	
47F. CH + N2 = CHN + N	5.1	A *	FORWARD IS LOW ENERGY N-N BREAKING
47R. CHN + N = CH + N2	-5.1	B *	POTENTIALY VERY IMPORTANT SPIN RETARDED CONSIDER BOTH DIRECTIONS
48F. CH + N2 = CN + HN	51.6	B *	FOUR-CENTER REACTION
48R. CN + HN = CH + N2	-51.6	B *	FORWARD IS MODERATE ENERGY N-N BREAKING CONSIDER BOTH DIRECTIONS FOR SCREENING
49F. CH + N2O = CHN + NO	-109.1	C	LOW CONCENTRATIONS FORWARD
49R. CHN + NO = CH + N2O	109.1	C	REVERSE HIGHLY ENDOTHERMIC
50F. CH + N2O = CHO + N2	-155.8	C	LOW CONCENTRATIONS FORWARD
50R. CHO + N2 = CH + N2O	155.8	C	REVERSE HIGHLY ENDOTHERMIC

REACTION	HR	NOTES	COMMENTS
51F. CH + N2O = CN + HNO	-36.4	C	LOW CONCENTRATIONS BOTH DIRECTIONS
51R. CN + HNO = CH + N2O	36.4	C	
52F. CH + O + M = CHO + M	-195.7	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD
52R. CHO + M = CH + O + M	195.7	C	REVERSE HIGHLY ENDOTHERMIC
53F. CH + O = CO + H	-176.2	B *	CONSIDER FORWARD
53R. CO + H = CH + O	176.2	C	REVERSE HIGHLY ENDOTHERMIC
54F. CH + O2 = CHO + O	-73.7	B *	CONSIDER FORWARD
54R. CHO + O = CH + O2	73.7	C	REVERSE ENDOTHERMIC
55F. CH + O2 = CO + HO	-160.4	C	FOUR-CENTER REACTION
55R. CO + HO = CH + O2	160.4	C	CH + O2 = CHO + O MORE LIKELY FORWARD REVERSE HIGHLY ENDOTHERMIC
56F. CH + O2 = CO2 + H	-181.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
56R. CO2 + H = CH + O2	181.6	C	
57F. CHN + M = CN + H + M	125.4	C	FORWARD HIGHLY ENDOTHERMIC
57R. CN + H + M = CHN + M	-125.4	C	THIRD ORDER, LOW CONCENTRATIONS REVERSE
58F. CHN + CHO = CH2O + CN	35.9	C	LOW CONCENTRATIONS, STERIC HINDRANCE
58R. CH2O + CN = CHN + CHO	-35.9	C	
59F. CHN + CH2 = CH3 + CN	12.9	B *	CONSIDER FUEL RICH
59R. CH3 + CN = CHN + CH2	-12.9	B *	REVERSE POSSIBLE DURING EARLY STAGES
60F. CHN + CH2O = CH3O + CN	99.9	C	STERIC HINDRANCE, LOW CONCENTRATIONS
60R. CH3O + CN = CHN + CH2O	-99.9	C	BOTH DIRECTIONS

REACTION	HR	NOTES	COMMENTS
61F. CHN + CH3 = CH4 + CN	17.3	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
61R. CH4 + CN = CHN + CH3	-17.3	B *	REVERSE POSSIBLE DURING EARLY STAGES
62F. CHN + CO = CHO + CN	105.9	C	FORWARD HIGHLY ENDOTHERMIC
62R. CHO + CN = CHN + CO	-105.9	C	LOW CONCENTRATIONS REVERSE
63F. CHN + H = CH2 + N	119.2	C	FORWARD HIGHLY ENDOTHERMIC
63R. CH2 + N = CHN + H	-119.2	C	LOW CONCENTRATIONS REVERSE
64F. CHN + H = CN + H2	17.0	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
64R. CN + H2 = CHN + H	-17.0	B *	
65F. CHN + HN = CH2 + N2	-31.3	C	LOW CONCENTRATIONS FORWARD
65R. CH2 + N2 = CHN + HN	31.3	B *	CONSIDER REVERSE FOR N-N BREAKING FOUR-CENTER REACTION
66F. CHN + HNO = CH2 + N2O	56.8	C	LOW CONCENTRATIONS BOTH DIRECTIONS
66R. CH2 + N2O = CHN + HNO	-56.8	C	FOUR-CENTER REACTION
67F. CHN + HNO = CH2O + N2	-83.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
67R. CH2O + N2 = CHN + HNO	83.5	C	
68F. CHN + HO = CHO + HN	56.0	C	FOUR-CENTER REACTION
68R. CHO + HN = CHN + HO	-56.0	C	FORWARD ENDOTHERMIC LOW CONCENTRATIONS REVERSE
69F. CHN + HO = CH2 + NO	71.4	C	FOUR-CENTER REACTION
69R. CH2 + NO = CHN + HO	-71.4	C	FORWARD ENDOTHERMIC CH2 + NO = CH2O + N MORE LIKELY REVERSE
70F. CHN + HO = CH2O + N	45.4	C	NOT LIKELY TO BE ELEMENTARY REACTION
70R. CH2O + N = CHN + HO	-45.4	C	

REACTION	HR	NOTES	COMMENTS
71F. CHN + HO = CN + H2O	2.1	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
71R. CN + H2O = CHN + HO	-2.1	B *	
72F. CHN + HO2 = CHO + HNO	-5.8	C	UNLIKELY TO BE ELEMENTARY REACTION
72R. CHO + HNO = CHN + HO2	5.8	C	FOUR-CENTER REACTION STERIC HINDRANCE
73F. CHN + HO2 = CH2 + NO2	62.8	C	FOUR-CENTER REACTION
73R. CH2 + NO2 = CHN + HO2	-62.8	C	FORWARD ENDOTHERMIC LOW CONCENTRATIONS REVERSE
74F. CHN + HO2 = CH2O + NO	-42.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
74R. CH2O + NO = CHN + HO2	42.6	C	
75F. CHN + H2 = CH2 + HN	148.8	C	FOUR-CENTER REACTION
75R. CH2 + HN = CHN + H2	-148.8	C	C-N BOND STRONG REVERSE HIGHLY ENDOTHERMIC
76F. CHN + H2 = CH3 + HN	115.1	C	NOT LIKELY TO BE ELEMENTARY REACTION
76R. CH3 + HN = CHN + H2	-115.1	C	
77F. CHN + H2O = CH2 + HNO	142.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
77R. CH2 + HNO = CHN + H2O	-142.0	C	STERIC HINDRANCE
78F. CHN + H2O = CH2O + HN	89.8	C	NOT LIKELY TO BE ELEMENTARY REACTION
78R. CH2O + HN = CHN + H2O	-89.8	C	
79F. CHN + H2O = CH3 + NO	82.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
79R. CH3 + NO = CHN + H2O	-82.2	C	
80F. CHN + H2O = CH3O + N	143.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
80R. CH3O + N = CHN + H2O	-143.3	C	

REACTION	HR	NOTES	COMMENTS
81F. CHN + N = CN + HN	46.5	C	LOW CONCENTRATIONS BOTH DIRECTIONS
81R. CN + HN = CHN + N	-46.5	C	
82F. CHN + NO = CHO + N2	-46.7	C	FOUR-CENTER REACTION
82R. CHO + N2 = CHN + NO	46.7	C	LOW CONCENTRATIONS FORWARD REVERSE ENDOTHERMIC
83F. CHN + NO = CN + HNO	72.7	C	FORWARD ENDOTHERMIC
83R. CN + HNO = CHN + NO	-72.7	C	LOW CONCENTRATIONS REVERSE
84F. CHN + NO2 = CHO + N2O	-11.8	C	FOUR-CENTER REACTION
84R. CHO + N2O = CHN + NO2	11.8	C	STERIC HINDRANCE
85F. CHN + O = CHO + N	28.6	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
85R. CHO + N = CHN + O	-28.6	B *	
86F. CHN + O = CN + HO	19.1	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
86R. CN + HO = CHN + O	-19.1	B *	NOTE- CNO POSSIBLE PRODUCT REVERSE
87F. CHN + O = CO + HN	-30.8	C	NOT LIKELY TO BE ELEMENTARY REACTION
87R. CO + HN = CHN + O	30.8	C	
88F. CHN + O2 = CHO + NO	-3.4	C	FOUR-CENTER REACTION
88R. CHO + NO = CHN + O2	3.4	C	CHN AND O2 NOT LIKELY HI SIMULTANEOUSLY
89F. CHN + O2 = CN + HO2	75.1	C	FORWARD ENDOTHERMIC
89R. CN + HO2 = CHN + O2	-75.1	C	LOW CONCENTRATIONS REVERSE
90F. CHN + O2 = CO + HNO	-36.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
90R. CO + HNO = CHN + O2	36.6	C	

REACTION	HR	NOTES	COMMENTS
91F. CHN + O2 = CO2 + HN	-36.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
91R. CO2 + HN = CHN + O2	36.2	C	
92F. CHO + M = CO + H + M	19.6	A *	WEAK BOND FORWARD
92R. CO + H + M = CHO + M	-19.6	C	THIRD ORDER REVERSE
93F. CHO + CHO = CH2 + CO2	-17.3	C	FOUR-CENTER REACTION
93R. CH2 + CO2 = CHO + CHO	17.3	C	STERIC HINDRANCE
94F. CHO + CHO = CH2O + CO	-69.9	B *	WEAK BOND FORWARD
94R. CH2O + CO = CHO + CHO	69.9	C	REVERSE ENDOTHERMIC
95F. CHO + CH2 = CH3 + CO	-93.0	B *	WEAK BOND FORWARD
95R. CH3 + CO = CHO + CH2	93.0	C	REVERSE ENDOTHERMIC
96F. CHO + CH2O = CH3 + CO2	-40.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
96R. CH3 + CO2 = CHO + CH2O	40.3	C	
97F. CHO + CH2O = CH3O + CO	-5.9	C	LARGE MOLECULES, LOW CONCENTRATIONS
97R. CH3O + CO = CHO + CH2O	5.9	C	LIKELY TO BE UNIMPORTANT
98F. CHO + CH3 = CH2 + CH2O	23.0	B *	RETAIN FORWARD FOR COMPARISON WITH
98R. CH2 + CH2O = CHO + CH3	-23.0	C	CHO + CH3 = CH4 + CO LOW CONCENTRATIONS REVERSE
99F. CHO + CH3 = CH4 + CO	-88.6	B *	WEAK BOND FORWARD
99R. CH4 + CO = CHO + CH3	88.6	C	REVERSE ENDOTHERMIC
100F. CHO + CH3O = CH2O + CH2O	-64.0	C	LARGE MOLECULES, LOW CONCENTRATIONS
100R. CH2O + CH2O = CHO + CH3O	64.0	C	LIKELY TO BE SLOW

REACTION	HR	NOTES	COMMENTS
101F. CHO + CH3O = CH4 + CO2	-123.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
101R. CH4 + CO2 = CHO + CH3O	123.0	C	
102F. CHO + CH4 = CH2 + CH3O	105.7	C	NOT LIKELY TO BE ELEMENTARY REACTION
102R. CH2 + CH3O = CHO + CH4	-105.7	C	
103F. CHO + CH4 = CH2O + CH3	18.6	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
103R. CH2O + CH3 = CHO + CH4	-18.6	B *	
104F. CHO + H = CH2 + O	90.6	C	FORWARD ENDOTHERMIC
104R. CH2 + O = CHO + H	-90.6	B *	CONSIDER REVERSE
105F. CHO + H + M = CH2O + M	-89.5	C	THIRD ORDER FORWARD
105R. CH2O + M = CHO + H + M	89.5	C	REVERSE ENDOTHERMIC
106F. CHO + H = CO + H2	-88.9	A *	CONSIDER FORWARD FOR CHO BREAKDOWN
106R. CO + H2 = CHO + H	88.9	C	REVERSE ENDOTHERMIC
107F. CHO + HN = CH2 + NO	15.4	C	FOUR-CENTER REACTION
107R. CH2 + NO = CHO + HN	-15.4	C	LOW CONCENTRATIONS BOTH DIRECTIONS
108F. CHO + HN = CH2O + N	-10.6	C	LOW CONCENTRATIONS BOTH DIRECTIONS
108R. CH2O + N = CHO + HN	10.6	C	
109F. CHO + HN = CN + H2O	-53.9	C	NOT LIKELY TO BE ELEMENTARY REACTION
109R. CN + H2O = CHO + HN	53.9	C	
110F. CHO + HNO = CH2 + NO2	68.6	C	FOUR-CENTER REACTION
110R. CH2 + NO2 = CHO + HNO	-68.6	C	ENDOTHERMIC FORWARD LOW CONCENTRATIONS REVERSEHO AND CH2O

REACTION	HR	NOTES	COMMENTS
111F. CHO + HNO = CH2O + NO	-36.8	C	UNIMPORTANT PATH BETWEEN CHO AND CH2O
111R. CH2O + NO = CHO + HNO	36.8	C	BETWEEN HNO AND NO
112F. CHO + HO = CH2 + O2	74.9	C	FOUR CENTER REACTION
112R. CH2 + O2 = CHO + HO	-74.9	C	CHO + HO = CO + H2O FASTER THAN FORWARD CH2 + O2 = CH2O + O FASTER THAN REVERSE
113F. CHO + HO = CH2O + O	16.8	C	CHO + HO = CO + H2O FASTER THAN FORWARD
113R. CH2O + O = CHO + HO	-16.8	A *	CONSIDER REVERSE FOR CH2O BREAKDOWN
114F. CHO + HO = CO + H2O	-103.8	A *	CONSIDER FORWARD FOR CHO BREAKDOWN
114R. CO + H2O = CHO + HO	103.8	C	REVERSE HIGHLY ENDOTHERMIC
115F. CHO + HO = CO2 + H2	-110.0	C	FOUR-CENTER REACTION
115R. CO2 + H2 = CHO + HO	110.0	C	CHO + HO = CO + H2O FASTER THAN FORWARD REVERSE HIGHLY ENDOTHERMIC
116F. CHO + HO2 = CH2O + O2	-39.1	B *	CONSIDER BOTH DIRECTIONS
116R. CH2O + O2 = CHO + HO2	39.1	B *	
117F. CHO + HO2 = CO2 + H2O	-165.1	C	FOUR-CENTER REACTION
117R. CO2 + H2O = CHO + HO2	165.1	C	CHO + HO2 = CH2O + O2 FASTER THAN FWD REVERSE HIGHLY ENDOTHERMIC
118F. CHO + H2 = CH2 + HO	92.8	C	FOUR-CENTER REACTION
118R. CH2 + HO = CHO + H2	-92.8	C	FORWARD ENDOTHERMIC CH3 + O AND CH2O + O MORE LIKELY PRODUCTS FROM REVERSE
119F. CHO + H2 = CH2O + H	19.0	B *	CONSIDER BOTH DIRECTIONS
119R. CH2O + H = CHO + H2	-19.0	A *	REVERSE MORE LIKELY TO BE IMPORTANT CH2O BREAKDOWN
120F. CHO + H2 = CH3 + O	86.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
120R. CH3 + O = CHO + H2	-86.5	C	

REACTION	HR	NOTES	COMMENTS
121F. CHO + H2 + M = CH3O + M	-6.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
121R. CH3O + M = CHO + H2 + M	6.5	C	
122F. CHO + H2O = CH2 + HO2	147.8	C	FOUR-CENTER REACTION
122R. CH2 + HO2 = CHO + H2O	-147.8	C	FORWARD HIGHLY ENDOTHERMIC CH2 + HO2 = CH3 + O2 FASTER THAN REVERSE
123F. CHO + H2O = CH2O + HO	33.8	C	CHO + M = CO + H + M FASTER THAN FORWARD
123R. CH2O + HO = CHO + H2O	-33.8	A *	CONSIDER REVERSE FOR CH2O BREAKDOWN
124F. CHO + H2O = CH3 + O2	85.7	C	NOT LIKELY TO BE ELEMENTARY REACTION
124R. CH3 + O2 = CHO + H2O	-85.7	C	
125F. CHO + H2O = CH3O + O	114.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
125R. CH3O + O = CHO + H2O	-114.6	C	
126F. CHO + N = CN + HO	-9.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
126R. CN + HO = CHO + N	9.5	C	
127F. CHO + N = CO + HN	-59.4	B *	CONSIDER FORWARD
127R. CO + HN = CHO + N	59.4	C	REVERSE ENDOTHERMIC
128F. CHO + NO = CN + HO2	78.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
128R. CN + HO2 = CHO + NO	-78.5	C	
129F. CHO + NO = CO + HNO	-33.2	B *	CONSIDER BOTH DIRECTIONS
129R. CO + HNO = CHO + NO	33.2	B *	PROBABLY NOT MAJOR IMPORTANCE
130F. CHO + NO = CO2 + HN	-32.7	C	FOUR-CENTER REACTION
130R. CO2 + HN = CHO + NO	32.7	C	CHO + NO = CO + HNO FASTER THAN FORWARD REVERSE MINOR

REACTION	HR	NOTES	COMMENTS
131F. CHO + NO2 = CO2 + HNO	-85.9	C	FOUR-CENTER
131R. CO2 + HNO = CHO + NO2	85.9	C	STERIC HINDRANCE
132F. CHO + N2 = CN + HNO	119.4	C	NOT LIKELY TO BE ELEMENTARY REACTION
132R. CN + HNO = CHO + N2	-119.4	C	
133F. CHO + O = CO + HO	-86.8	A *	CONSIDER FORWARD FOR CHO BREAKDOWN
133R. CO + HO = CHO + O	86.8	C	REVERSE ENDOTHERMIC
134F. CHO + O = CO2 + H	-107.9	B *	CONSIDER FORWARD
134R. CO2 + H = CHO + O	107.9	C	REVERSE HIGHLY ENDOTHERMIC
135F. CHO + O2 = CO + HO2	-30.8	B *	CONSIDER BOTH DIRECTIONS
135R. CO + HO2 = CHO + O2	30.8	B *	FORWARD FOR CHO BREAKDOWN REVERSE PROBABLY LESS IMPORTANT
136F. CHO + O2 = CO2 + HO	-92.2	C	FOUR-CENTER REACTION
136R. CO2 + HO = CHO + O2	92.2	C	CHO + O2 = CO + HO2 FASTER THAN FORWARD REVERSE ENDOTHERMIC
137F. CH2 + CH2O = CH4 + CO	-111.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
137R. CH4 + CO = CH2 + CH2O	111.6	C	
138F. CH2 + CH3O = CH2O + CH3	-87.0	C	LARGE MOLECULES, LOW CONCENTRATIONS
138R. CH2O + CH3 = CH2 + CH3O	87.0	C	REVERSE ENDOTHERMIC LIKELY TO BE UNIMPORTANT
139F. CH2 + CH4 = CH3 + CH3	-4.4	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
139R. CH3 + CH3 = CH2 + CH4	4.4	B *	MAY BE IMPORTANT EARLY STAGES
140F. CH2 + CO2 = CH2O + CO	-52.7	C	FORWARD RX UNIMPORTANT FOR CH2 OR CO2
140R. CH2O + CO = CH2 + CO2	52.7	C	REVERSE ENDOTHERMIC

REACTION	HR	NOTES	COMMENTS
141F. CH2 + H + M = CH3 + M	-112.5	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD
141R. CH3 + M = CH2 + H + M	112.5	C	REVERSE HIGHLY ENDOTHERMIC
142F. CH2 + HN = CH3 + N	-33.6	C	LOW CONCENTRATIONS BOTH DIRECTIONS
142R. CH3 + N = CH2 + HN	33.6	C	
143F. CH2 + HNO = CH2O + HN	-52.2	C	CH2 + HNO = CH3 + NO MORE LIKELY FORWARD
143R. CH2O + HN = CH2 + HNO	52.2	C	REVERSE ENDOTHERMIC
144F. CH2 + HNO = CH3 + NO	-59.8	C	FORWARD RX UNIMPORTANT FOR CH2 OR HNO
144R. CH3 + NO = CH2 + HNO	59.8	C	REVERSE ENDOTHERMIC
145F. CH2 + HNO = CH3O + N	1.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
145R. CH3O + N = CH2 + HNO	-1.2	C	
146F. CH2 + HO = CH2O + H	-73.8	B *	CONSIDER FORWARD
146R. CH2O + H = CH2 + HO	73.8	C	REVERSE ENDOTHERMIC
147F. CH2 + HO = CH3 + O	-6.2	B *	CONSIDER BOTH DIRECTIONS
147R. CH3 + O = CH2 + HO	6.2	B *	REVERSE FOR CH3 BREAKDOWN
148F. CH2 + HO + M = CH3O + M	-99.3	C	CH2O + H OR CH3 + O MORE LIKELY PRODUCTS
148R. CH3O + M = CH2 + HO + M	99.3	C	REVERSE ENDOTHERMIC
149F. CH2 + HO2 = CH2O + HO	-114.0	C	CH2 + HO2 = CH3 + O2 MORE LIKELY FORWARD
149R. CH2O + HO = CH2 + HO2	114.0	C	REVERSE HIGHLY ENDOTHERMIC
150F. CH2 + HO2 = CH3 + O2	-62.2	B *	CONSIDER FORWARD
150R. CH3 + O2 = CH2 + HO2	62.2	C	REVERSE ENDOTHERMIC

REACTION	HR	NOTES	COMMENTS
151F. CH2 + HO2 = CH3O + O	-33.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
151R. CH3O + O = CH2 + HO2	33.2	C	
152F. CH2 + H2 = CH3 + H	-4.1	B *	CONSIDER BOTH DIRECTIONS
152R. CH3 + H = CH2 + H2	4.1	A *	REVERSE FOR CH3 BREAKDOWN FUEL RICH
153F. CH2 + H2 + M = CH4 + M	-112.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
153R. CH4 + M = CH2 + H2 + M	112.2	C	
154F. CH2 + H2O = CH2O + H2	-58.9	C	NOT LIKELY TO BE ELEMENTARY REACTION
154R. CH2O + H2 = CH2 + H2O	58.9	C	MIGHT BE FOUR-CENTER STERICALLY HINDERED
155F. CH2 + H2O = CH3 + HO	10.8	B *	CONSIDER BOTH DIRECTIONS
155R. CH3 + HO = CH2 + H2O	-10.8	A *	REVERSE FOR CH3 BREAKDOWN
156F. CH2 + H2O = CH3O + H	24.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
156R. CH3O + H = CH2 + H2O	-24.0	C	
157F. CH2 + H2O = CH4 + O	9.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
157R. CH4 + O = CH2 + H2O	-9.0	C	
158F. CH2 + N = CN + H2	-102.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
158R. CN + H2 = CH2 + N	102.3	C	
159F. CH2 + NO = CH2O + N	-26.0	B *	CONSIDER FORWARD FUEL RICH
159R. CH2O + N = CH2 + NO	26.0	C	REVERSE NOT LIKELY TO BE IMPORTANT
160F. CH2 + NO = CN + H2O	-69.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
160R. CN + H2O = CH2 + NO	69.3	C	

REACTION	HR	NOTES	COMMENTS
161F. CH2 + NO2 = CH2O + NO	-105.4	C	LOW CONCENTRATIONS FORWARD
161R. CH2O + NO = CH2 + NO2	105.4	C	REVERSE HIGHLY ENDOTHERMIC
162F. CH2 + N2O = CH2O + N2	-140.2	C	LOW CONCENTRATIONS FORWARD
162R. CH2O + N2 = CH2 + N2O	140.2	C	REVERSE HIGHLY ENDOTHERMIC
163F. CH2 + O + M = CH2O + M	-180.1	C	THIRD ORDER FORWARD
163R. CH2O + M = CH2 + O + M	180.1	C	REVERSE HIGHLY ENDOTHERMIC
164F. CH2 + O = CO + H2	-179.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
164R. CO + H2 = CH2 + O	179.5	C	
165F. CH2 + O2 = CH2O + O	-58.1	B *	CONSIDER FORWARD
165R. CH2O + O = CH2 + O2	58.1	C	REVERSE ENDOTHERMIC
166F. CH2 + O2 = CO + H2O	-178.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
166R. CO + H2O = CH2 + O2	178.6	C	
167F. CH2 + O2 = CO2 + H2	-184.9	C	NOT LIKELY TO BE ELEMENTARY REACTION
167R. CO2 + H2 = CH2 + O2	184.9	C	
168F. CH2O + M = CO + H2 + M	0.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
168R. CO + H2 + M = CH2O + M	-0.6	C	
169F. CH2O + CH2O = CH4 + CO2	-59.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
169R. CH4 + CO2 = CH2O + CH2O	59.0	C	
170F. CH2O + CH4 = CH3 + CH3O	82.7	C	FORWARD ENDOTHERMIC
170R. CH3 + CH3O = CH2O + CH4	-82.7	C	LARGE MOLECULES LOW CONCENTRATIONS REV

REACTION	HR	NOTES	COMMENTS
171F. CH2O + H = CH3 + O	67.6	C	FORWARD ENDOTHERMIC
171R. CH3 + O = CH2O + H	-67.6	A *	CONSIDER REVERSE FOR CH3 BREAKDOWN
172F. CH2O + H + M = CH3O + M	-25.5	B *	CONSIDER BOTH DIRECTIONS
172R. CH3O + M = CH2O + H + M	25.5	B *	REVERSE MAY BE IMPORTANT CH3O BREAKDOWN
173F. CH2O + HN = CH3 + NO	-7.6	C	FOUR-CENTER, STERIC HINDRANCE
173R. CH3 + NO = CH2O + HN	7.6	C	
174F. CH2O + HN = CH3O + N	53.4	C	FORWARD ENDOTHERMIC
174R. CH3O + N = CH2O + HN	-53.4	B *	CONSIDER REVERSE FOR CH3O BREAKDOWN PROBABLY MINOR
175F. CH2O + HNO = CH3 + NO2	45.6	C	FOUR-CENTER, STERIC HINDRANCE
175R. CH3 + NO2 = CH2O + HNO	-45.6	C	
176F. CH2O + HNO = CH3O + NO	27.2	C	LOW CONCENTRATIONS BOTH DIRECTIONS
176R. CH3O + NO = CH2O + HNO	-27.2	C	
177F. CH2O + HO = CH3 + O2	51.8	C	FORWARD ENDOTHERMIC
177R. CH3 + O2 = CH2O + HO	-51.8	B *	CONSIDER REVERSE FOR CH3 BREAKDOWN FOUR-CENTER REACTION
178F. CH2O + HO = CH3O + O	80.8	C	FORWARD ENDOTHERMIC
178R. CH3O + O = CH2O + HO	-80.8	B *	CONSIDER REVERSE FOR CH3O BREAKDOWN
179F. CH2O + HO2 = CH3O + O2	24.9	C	LOW CONCENTRATIONS FORWARD
179R. CH3O + O2 = CH2O + HO2	-24.9	B *	CONSIDER REVERSE FOR CH3O BREAKDOWN
180F. CH2O + H2 = CH3 + HO	69.7	C	FOUR-CENTER REACTION
180R. CH3 + HO = CH2O + H2	-69.7	C	FORWARD ENDOTHERMIC CH3 + HO = CH4 + O AND CH3 + HO = CH2 + H2O MORE LIKELY REVERSE

REACTION	HR	NOTES	COMMENTS
181F. CH2O + H2 = CH3O + H	83.0	C	FORWARD ENDOTHERMIC
181R. CH3O + H = CH2O + H2	-83.0	B *	CONSIDER REVERSE FOR CH3O BREAKDOWN
182F. CH2O + H2 = CH4 + O	67.9	C	NOT LIKELY TO BE ELEMENTARY REACTION
182R. CH4 + O = CH2O + H2	-67.9	C	
183F. CH2O + H2O = CH3 + HO2	124.8	C	FOUR-CENTER REACTION
183R. CH3 + HO2 = CH2O + H2O	-124.8	C	STERIC HINDRANCE
184F. CH2O + H2O = CH3O + HO	97.8	C	FORWARD ENDOTHERMIC
184R. CH3O + HO = CH2O + H2O	-97.8	B *	CONSIDER REVERSE FOR CH3O BREAKDOWN
185F. CH2O + H2O = CH4 + O2	67.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
185R. CH4 + O2 = CH2O + H2O	-67.0	C	
186F. CH2O + N = CN + H2O	-43.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
186R. CN + H2O = CH2O + N	43.3	C	
187F. CH2O + O = CO + H2O	-120.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
187R. CO + H2O = CH2O + O	120.6	C	
188F. CH2O + O = CO2 + H2	-126.8	C	NOT LIKELY TO BE ELEMENTARY REACTION
188R. CO2 + H2 = CH2O + O	126.8	C	
189F. CH2O + O2 = CO2 + H2O	-126.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
189R. CO2 + H2O = CH2O + O2	126.0	C	
190F. CH3 + CO2 = CH3O + CO	34.4	C	LARGE MOLECULES
190R. CH3O + CO = CH3 + CO2	-34.4	C	LIKELY TO BE UNIMPORTANT

REACTION	HR	NOTES	COMMENTS
191F. CH3 + H + M = CH4 + M	-108.2	B *	MAY BE IMPORTANT EARLY STAGES
191R. CH4 + M = CH3 + H + M	108.2	B *	
192F. CH3 + HN = CH4 + N	-29.2	C	LOW CONCENTRATIONS
192R. CH4 + N = CH3 + HN	29.2	C	
193F. CH3 + HNO = CH3O + HN	34.8	C	LOW CONCENTRATIONS
193R. CH3O + HN = CH3 + HNO	-34.8	C	
194F. CH3 + HNO = CH4 + NO	-55.4	C	LOW CONCENTRATIONS FORWARD
194R. CH4 + NO = CH3 + HNO	55.4	C	REVERSE ENDOTHERMIC
195F. CH3 + HO = CH3O + H	13.2	B *	CONSIDER BOTH DIRECTIONS FOR ROLE CH3O
195R. CH3O + H = CH3 + HO	-13.2	B *	
196F. CH3 + HO = CH4 + O	-1.8	A *	CONSIDER BOTH DIRECTIONS
196R. CH4 + O = CH3 + HO	1.8	A *	ROLE IN INITIAL CH4 BREAKDOWN
197F. CH3 + HO2 = CH3O + HO	-27.0	C	CH3 + HO2 = CH4 + O2 MORE LIKELY FORWARD
197R. CH3O + HO = CH3 + HO2	27.0	C	CH3O + HO = CH2O + H2O MORE LIKELY REV
198F. CH3 + HO2 = CH4 + O2	-57.8	B *	CONSIDER FORWARD
198R. CH4 + O2 = CH3 + HO2	57.8	C	REVERSE ENDOTHERMIC
199F. CH3 + H2 = CH4 + H	0.3	A *	CONSIDER BOTH DIRECTIONS
199R. CH4 + H = CH3 + H2	-0.3	A *	ROLE IN INITIAL CH4 BREAKDOWN
200F. CH3 + H2O = CH3O + H2	28.1	C	NOT LIKELY TO BE ELEMENTARY REACTION
200R. CH3O + H2 = CH3 + H2O	-28.1	C	

REACTION	HR	NOTES	COMMENTS
201F. CH3 + H2O = CH4 + HO	15.2	A *	CONSIDER BOTH DIRECTIONS
201R. CH4 + HO = CH3 + H2O	-15.2	A *	ROLE IN INITIAL CH4 BREAKDOWN
202F. CH3 + NO = CH3O + N	61.0	C	FORWARD ENDOTHERMIC
202R. CH3O + N = CH3 + NO	-61.0	C	CH3O + N = CH2O + HN MORE LIKELY REVERSE
203F. CH3 + NO2 = CH3O + NO	-18.3	C	LOW CONCENTRATIONS BOTH DIRECTIONS
203R. CH3O + NO = CH3 + NO2	18.3	C	
204F. CH3 + N2O = CH3O + N2	-53.2	C	LARGE MOLECULES STERIC HINDRANCE FORWARD
204R. CH3O + N2 = CH3 + N2O	53.2	C	REVERSE ENDOTHERMIC
205F. CH3 + O + M = CH3O + M	-93.1	C	THIRD ORDER FORWARD
205R. CH3O + M = CH3 + O + M	93.1	C	STABILIZATION UNLIKELY REVERSE ENDOTHERMIC
206F. CH3 + O2 = CH3O + O	29.0	B *	CONSIDER BOTH DIRECTIONS
206R. CH3O + O = CH3 + O2	-29.0	B *	FORWARD FOR CH3 BREAKDOWN
207F. CH3O + H = CH4 + O	-15.1	C	CH3O + H = CH2O + H2 MORE LIKELY FORWARD
207R. CH4 + O = CH3O + H	15.1	C	CH4 + O = CH3 + HO MORE LIKELY REVERSE
208F. CH3O + HN = CH4 + NO	-90.3	C	LOW CONCENTRATIONS FORWARD
208R. CH4 + NO = CH3O + HN	90.3	C	REVERSE ENDOTHERMIC
209F. CH3O + HNO = CH4 + NO2	-37.1	C	LOW CONCENTRATIONS BOTH DIRECTIONS
209R. CH4 + NO2 = CH3O + HNO	37.1	C	FOUR-CENTER, STERIC HINDRANCE
210F. CH3O + HO = CH4 + O2	-30.8	C	FOUR-CENTER, STERIC HINDRANCE
210R. CH4 + O2 = CH3O + HO	30.8	C	

REACTION	HR	NOTES	COMMENTS
211F. CH3O + H2 = CH4 + HO	-12.9	C	FOUR-CENTER, STERIC HINDRANCE
211R. CH4 + HO = CH3O + H2	12.9	C	
212F. CH3O + H2O = CH4 + HO2	42.1	C	FOUR-CENTER, STERIC HINDRANCE
212R. CH4 + HO2 = CH3O + H2O	-42.1	C	
213F. CN + HO = CO + HN	-49.9	C	FOUR-CENTER REACTION
213R. CO + HN = CN + HO	49.9	C	CN + HO = CHN + O MORE LIKELY FORWARD REVERSE ENDOTHERMIC
214F. CN + HO2 = CO + HNO	-111.7	C	FOUR-CENTER FOR NOH STRUCTURE
214R. CO + HNO = CN + HO2	111.7	C	REVERSE HIGHLY ENDOTHERMIC
215F. CN + HO2 = CO2 + HN	-111.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
215R. CO2 + HN = CN + HO2	111.2	C	
216F. CN + NO = CO + N2	-152.6	B *	CONSIDER FORWARD FOR NO DESTRUCTION
216R. CO + N2 = CN + NO	152.6	C	REVERSE HIGHLY ENDOTHERMIC FOUR-CENTER REACTION
217F. CN + NO2 = CO + N2O	-117.7	C	FOUR-CENTER, STERIC HINDRANCE
217R. CO + N2O = CN + NO2	117.7	C	REVERSE HIGHLY ENDOTHERMIC
218F. CN + NO2 = CO2 + N2	-205.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
218R. CO2 + N2 = CN + NO2	205.3	C	
219F. CN + O = CO + N	-77.2	B *	CONSIDER FORWARD
219R. CO + N = CN + O	77.2	C	REVERSE ENDOTHERMIC
220F. CN + O2 = CO + NO	-109.3	B *	FOUR-CENTER REACTION, PROBABLY SLOW
220R. CO + NO = CN + O2	109.3	C	REVERSE HIGHLY ENDOTHERMIC

REACTION	HR	NOTES	COMMENTS
221F. CN + O2 = CO2 + N	-82.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
221R. CO2 + N = CN + O2	82.6	C	
222F. CO + HNO = CO2 + HN	0.4	C	HNO, HN MINOR RX PARTNERS FOR CO, CO2
222R. CO2 + HN = CO + HNO	-0.4	C	
223F. CO + HO = CO2 + H	-21.1	A *	FORWARD MAIN PATH FROM CO TO CO2
223R. CO2 + H = CO + HO	21.1	B *	CONSIDER BOTH DIRECTIONS
224F. CO + HO2 = CO2 + HO	-61.3	C	CO + HO = CO2 + H MORE IMPORTANT FORWARD
224R. CO2 + HO = CO + HO2	61.3	C	MAY HAVE MINOR ROLE FORWARD REVERSE ENDOTHERMIC
225F. CO + H2O = CO2 + H2	-6.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
225R. CO2 + H2 = CO + H2O	6.3	C	
226F. CO + NO = CO2 + N	26.7	C	SPIN HINDERED
226R. CO2 + N = CO + NO	-26.7	C	EXPERIMENT INDICATES REACTION SLOW
227F. CO + NO2 = CO2 + NO	-52.7	C	LOW CONCENTRATIONS FORWARD
227R. CO2 + NO = CO + NO2	52.7	C	REVERSE ENDOTHERMIC
228F. CO + N2O = CO2 + N2	-87.6	C	CO, N2O MINOR REACTION PARTNERS
228R. CO2 + N2 = CO + N2O	87.6	C	REVERSE ENDOTHERMIC
229F. CO + O + M = CO2 + M	-127.4	B *	FORWARD TERMINATION REACTION
229R. CO2 + M = CO + O + M	127.4	C	REVERSE HIGHLY ENDOTHERMIC
230F. CO + O2 = CO2 + O	-5.4	B *	CONSIDER BOTH DIRECTIONS
230R. CO2 + O = CO + O2	5.4	B *	PROBABLY SLOWER THAN CO + HO = CO2 + H

REACTION	HR	NOTES	COMMENTS
231F. H + H + M = H2 + M	-108.4	A *	FORWARD TERMINATION REACTION
231R. H2 + M = H + H + M	108.4	C	REVERSE HIGHLY ENDOTHERMIC
232F. H + HN = H2 + N	-29.5	B *	CONSIDER BOTH DIRECTIONS
232R. H2 + N = H + HN	29.5	B *	
233F. H + HNO = HN + HO	21.6	B *	CONSIDER BOTH DIRECTIONS
233R. HN + HO = H + HNO	-21.6	B *	PROBABLY MINOR
234F. H + HNO = H2 + NO	-55.7	B *	CONSIDER FORWARD, PROBABLY MINOR
234R. H2 + NO = H + HNO	55.7	C	REVERSE ENDOTHERMIC
235F. H + HNO = H2O + N	-22.8	C	POSSIBLE FOR NOH STRUCTURE
235R. H2O + N = H + HNO	22.8	C	PROBABLY MINOR
236F. H + HO = H2O + O	-2.2	A *	CONSIDER BOTH DIRECTIONS
236R. H2O + O = H + HO	2.2	A *	
237F. H + HO + M = H2O + M	-123.3	A *	FORWARD TERMINATION REACTION
237R. H2O + M = H + HO + M	123.3	C	REVERSE HIGHLY ENDOTHERMIC
238F. H + HO2 = HO + HO	-40.2	B *	CONSIDER FORWARD FOR HO2 REMOVAL
238R. HO + HO = H + HO2	40.2	C	HO + HO = H2O + O FASTER THAN REVERSE
239F. H + HO2 = H2 + O2	-58.1	B *	CONSIDER FORWARD FOR HO2 REMOVAL
239R. H2 + O2 = H + HO2	58.1	C	REVERSE ENDOTHERMIC
240F. H + HO2 = H2O + O	-57.2	C	FORWARD PRODUCTS MORE LIKELY TO BE
240R. H2O + O = H + HO2	57.2	C	HO + HO OR H2 + O2

REACTION	HR	NOTES	COMMENTS
241F. H + H2O = HO + H2	14.9	A *	CONSIDER BOTH DIRECTIONS
241R. HO + H2 = H + H2O	-14.9	A *	
242F. H + N + M = HN + M	-78.9	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD
242R. HN + M = H + N + M	78.9	C	REVERSE ENDOTHERMIC
243F. H + NO = HN + O	75.9	C	FORWARD ENDOTHERMIC
243R. HN + O = H + NO	-75.9	B *	CONSIDER REVERSE
244F. H + NO + M = HNO + M	-52.7	C	THIRD ORDER FORWARD
244R. HNO + M = H + NO + M	52.7	C	REVERSE ENDOTHERMIC
245F. H + NO = HO + N	47.8	B *	CONSIDER BOTH DIRECTIONS
245R. HO + N = H + NO	-47.8	A *	REVERSE PART OF MODIFIED ZELDOVICH
246F. H + NO2 = HN + O2	27.9	C	STERIC HINDRANCE
246R. HN + O2 = H + NO2	-27.9	C	OTHER PRODUCTS MORE LIKELY
247F. H + NO2 = HNO + O	22.0	C	POSSIBLE FOR NOH STRUCTURE
247R. HNO + O = H + NO2	-22.0	C	OTHER PRODUCTS MORE LIKELY
248F. H + NO2 = HO + NO	-31.6	B *	CONSIDER BOTH DIRECTIONS
248R. HO + NO = H + NO2	31.6	B *	PROBABLY UNIMPORTANT
249F. H + NO2 = HO2 + N	56.4	C	NOT LIKELY TO BE ELEMENTARY REACTION
249R. HO2 + N = H + NO2	-56.4	C	
250F. H + N2 = HN + N	150.5	C	FORWARD HIGHLY ENDOTHERMIC
250R. HN + N = H + N2	-150.5	C	LOW CONCENTRATIONS REVERSE

REACTION	HR	NOTES	COMMENTS
251F. H + N2O = HN + NO	36.2	C	H + N2O = HO + N2 FASTER FORWARD
251R. HN + NO = H + N2O	-36.2	C	LOW CONCENTRATIONS REVERSE
252F. H + N2O = HNO + N	62.5	C	FORWARD ENDOTHERMIC
252R. HNO + N = H + N2O	-62.5	C	LOW CONCENTRATIONS REVERSE
253F. H + N2O = HO + N2	-66.4	B *	CONSIDER FORWARD
253R. HO + N2 = H + N2O	66.4	C	REVERSE ENDOTHERMIC
254F. H + O + M = HO + M	-106.3	A *	FORWARD REMOVES ACTIVE CENTERS
254R. HO + M = H + O + M	106.3	C	REVERSE HIGHLY ENDOTHERMIC
255F. H + O2 = HO + O	15.7	A *	CONSIDER BOTH DIRECTIONS
255R. HO + O = H + O2	-15.7	A *	
256F. H + O2 + M = HO2 + M	-50.4	B *	CONSIDER FORWARD
256R. HO2 + M = H + O2 + M	50.4	C	REVERSE ENDOTHERMIC
257F. HN + HN = H2 + N2	-180.0	C	FOUR-CENTER REACTION
257R. H2 + N2 = HN + HN	180.0	C	LOW CONCENTRATIONS FORWARD REVERSE HIGHLY ENDOTHERMIC
258F. HN + HNO = H2 + N2O	-92.0	C	FOUR-CENTER, STERIC HINDRANCE
258R. H2 + N2O = HN + HNO	92.0	C	LOW CONCENTRATIONS FORWARD REVERSE ENDOTHERMIC
259F. HN + HNO = H2O + N2	-173.3	C	FOUR-CENTER, STERIC HINDRANCE
259R. H2O + N2 = HN + HNO	173.3	C	
260F. HN + HO = H2 + NO	-77.3	C	FOUR-CENTER REACTION
260R. H2 + NO = HN + HO	77.3	C	HN + HO = H2O + N MORE LIKELY FORWARD REVERSE ENDOTHERMIC

REACTION	HR	NOTES	COMMENTS
261F. HN + HO = H2O + N	-44.4	B *	CONSIDER FORWARD
261R. H2O + N = HN + HO	44.4	C	REVERSE ENDOTHERMIC
262F. HN + HO2 = HNO + HO	-61.8	C	LOW CONCENTRATIONS FORWARD
262R. HNO + HO = HN + HO2	61.8	C	REVERSE ENDOTHERMIC
263F. HN + HO2 = H2 + NO2	-86.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
263R. H2 + NO2 = HN + HO2	86.0	C	
264F. HN + HO2 = H2O + NO	-132.4	C	FOUR-CENTER REACTION, STERIC HINDRANCE
264R. H2O + NO = HN + HO2	132.4	C	
265F. HN + H2O = HNO + H2	-6.7	C	FOUR-CENTER REACTION STERIC HINDRANCE
265R. HNO + H2 = HN + H2O	6.7	C	NOH STRUCTURE
266F. HN +.NO = HNO + N	26.2	C	LOW CONCENTRATIONS BOTH DIRECTIONS
266R. HNO + N = HN +.NO	-26.2	C	
267F. HN + NO = HO + N2	-102.7	C	FOUR-CENTER REACTION
267R. HO + N2 = HN + NO	102.7	C	LOW CONCENTRATIONS FORWARD REVERSE HIGHLY ENDOTHERMIC
268F. HN + NO2 = HNO + NO	-53.2	C	LOW CONCENTRATIONS BOTH DIRECTIONS
268R. HNO + NO = HN + NO2	53.2	C	
269F. HN + NO2 = HO + N2O	-67.8	C	FOUR-CENTER REACTION, STERIC HINDRANCE
269R. HO + N2O = HN + NO2	67.8	C	LOW CONCENTRATIONS FORWARD REVERSE ENDOTHERMIC
270F. HN + NO2 = HO2 + N2	-94.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
270R. HO2 + N2 = HN + NO2	94.0	C	

REACTION	HR	NOTES	COMMENTS
271F. HN + N2O = HNO + N2	-88.0	C	LOW CONCENTRATIONS FORWARD
271R. HNO + N2 = HN + N2O	88.0	C	REVERSE ENDOTHERMIC
272F. HN + O + M = HNO + M	-127.9	C	THIRD ORDER FORWARD
272R. HNO + M = HN + O + M	127.9	C	REVERSE HIGHLY ENDOTHERMIC
273F. HN + O = HO + N	-27.4	C	HN + O = H + NO MORE LIKELY FORWARD
273R. HO + N = HN + O	27.4	C	HO + N = H + NO MORE LIKELY REVERSE
274F. HN + O2 = HNO + O	-5.8	B *	CONSIDER BOTH DIRECTIONS
274R. HNO + O = HN + O2	5.8	B *	PROBABLY MINOR
275F. HN + O2 = HO + NO	-59.4	C	FOUR-CENTER REACTION
275R. HO + NO = HN + O2	59.4	C	HN + O2 = HNO + O FASTER FORWARD REVERSE ENDOTHERMIC
276F. HN + O2 = HO2 + N	28.6	C	HN + O2 = HNO + O FASTER FORWARD
276R. HO2 + N = HN + O2	-28.6	C	LOW CONCENTRATIONS REVERSE
277F. HNO + M = HO + N + M	100.5	C	FORWARD HIGHLY ENDOTHERMIC
277R. HO + N + M = HNO + M	-100.5	C	THIRD ORDER REVERSE NOH STRUCTURE
278F. HNO + HNO = H2O + N2O	-85.3	C	FOUR-CENTER REACTION, STERIC HINDRANCE
278R. H2O + N2O = HNO + HNO	85.3	C	
279F. HNO + HO = H2 + NO2	-24.2	C	FOUR-CENTER REACTION
279R. H2 + NO2 = HNO + HO	24.2	C	HNO + HO = H2O + NO MORE LIKELY FORWARD LOW CONCENTRATIONS REVERSE
280F. HNO + HO = H2O + NO	-70.6	B *	CONSIDER FORWARD
280R. H2O + NO = HNO + HO	70.6	C	REVERSE ENDOTHERMIC

REACTION	HR	NOTES	COMMENTS
281F. HNO + HO2 = H2O + NO2	-79.2	C	FOUR-CENTER REACTION, STERIC HINDRANCE
281R. H2O + NO2 = HNO + HO2	79.2	C	
282F. HNO + N = HO + N2	-128.9	C	LOW CONCENTRATIONS FORWARD
282R. HO + N2 = HNO + N	128.9	C	REVERSE HIGHLY ENDOTHERMIC
283F. HNO + NO = HO + N2O	-14.7	C	FOUR-CENTER REACTION, STERIC HINDRANCE
283R. HO + N2O = HNO + NO	14.7	C	
284F. HNO + NO = HO2 + N2	-40.9	C	FOUR-CENTER REACTION, NOH STRUCTURE
284R. HO2 + N2 = HNO + NO	40.9	C	LOW CONCENTRATIONS FORWARD REVERSE ENDOTHERMIC
285F. HNO + NO2 = HO2 + N2O	-6.0	C	FOUR-CENTER REACTION, STERIC HINDRANCE
285R. HO2 + N2O = HNO + NO2	6.0	C	
286F. HNO + O = HO + NO	-53.6	B *	CONSIDER FORWARD
286R. HO + NO = HNO + O	53.6	C	REVERSE ENDOTHERMIC
287F. HNO + O = HO2 + N	34.4	C	HNO + O = HO + NO FASTER FORWARD
287R. HO2 + N = HNO + O	-34.4	C	LOW CONCENTRATIONS REVERSE
288F. HNO + O2 = HO + NO2	-6.3	C	FOUR-CENTER REACTION, STERIC HINDRANCE
288R. HO + NO2 = HNO + O2	6.3	C	
289F. HNO + O2 = HO2 + NO	2.4	C	FOUR-CENTER REACTION, STERIC HINDRANCE
289R. HO2 + NO = HNO + O2	-2.4	C	
290F. HO + HO = H2 + O2	-17.9	C	FOUR-CENTER REACTION
290R. H2 + O2 = HO + HO	17.9	C	HO + HO = H2O + O FASTER FORWARD REVERSE MAY HAVE ROLE IN H2/O2 IGNITION

REACTION	HR	NOTES	COMMENTS
291F. HO + HO = H2O + O	-17.0	A *	CONSIDER BOTH DIRECTIONS
291R. H2O + O = HO + HO	17.0	A *	
292F. HO + HO2 = H2O + O2	-73.0	A *	CONSIDER FORWARD FOR HO2 REMOVAL
292R. H2O + O2 = HO + HO2	73.0	C	REVERSE ENDOTHERMIC
293F. HO + H2O = HO2 + H2	55.1	C	FOUR-CENTER REACTION
293R. HO2 + H2 = HO + H2O	-55.1	C	FORWARD ENDOTHERMIC
294F. HO + NO = HO2 + N	88.0	C	FORWARD ENDOTHERMIC
294R. HO2 + N = HO + NO	-88.0	C	LOW CONCENTRATIONS REVERSE
295F. HO + NO2 = HO2 + NO	8.6	B *	CONSIDER BOTH DIRECTIONS
295R. HO2 + NO = HO + NO2	-8.6	B *	REVERSE HAS BEEN CONSIDERED FOR EARLY NO2 FORMATION
296F. HO + N2O = HO2 + N2	-26.2	B *	CONSIDER BOTH DIRECTIONS
296R. HO2 + N2 = HO + N2O	26.2	B *	PROBABLY MINOR
297F. HO + O + M = HO2 + M	-66.1	B *	CONSIDER FORWARD
297R. HO2 + M = HO + O + M	66.1	C	REVERSE ENDOTHERMIC
298F. HO + O2 = HO2 + O	55.9	C	FORWARD ENDOTHERMIC
298R. HO2 + O = HO + O2	-55.9	A *	CONSIDER REVERSE FOR HO2 REMOVAL
299F. H2 + NO = H2O + N	32.9	C	NOT LIKELY TO BE ELEMENTARY REACTION
299R. H2O + N = H2 + NO	-32.9	C	
300F. H2 + NO2 = H2O + NO	-46.4	C	NOT LIKELY TO BE ELEMENTARY REACTION
300R. H2O + NO = H2 + NO2	46.4	C	

REACTION	HR	NOTES	COMMENTS
301F. H2 + N2O = H2O + N2	-81.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
301R. H2O + N2 = H2 + N2O	81.3	C	
302F. H2 + O + M = H2O + M	-121.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
302R. H2O + M = H2 + O + M	121.2	C	
303F. H2 + O2 = H2O + O	0.9	C	NOT LIKELY TO BE ELEMENTARY REACTION
303R. H2O + O = H2 + O2	-0.9	C	
304F. N + N + M = N2 + M	-229.4	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD
304R. N2 + M = N + N + M	229.4	C	REVERSE HIGHLY ENDOTHERMIC
305F. N + NO = N2 + O	-75.3	B *	CONSIDER BOTH DIRECTIONS
305R. N2 + O = N + NO	75.3	A *	REVERSE PART OF ZELDOVICH MECHANISM
306F. N + NO + M = N2O + M	-115.2	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD
306R. N2O + M = N + NO + M	115.2	C	REVERSE HIGHLY ENDOTHERMIC
307F. N + NO2 = NO + NO	-79.4	B *	CONSIDER FORWARD (LOW CONCENTRATIONS)
307R. NO + NO = N + NO2	79.4	C	REVERSE ENDOTHERMIC
308F. N + NO2 = N2 + O2	-122.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
308R. N2 + O2 = N + NO2	122.6	C	
309F. N + NO2 = N2O + O	-40.4	C	N + NO2 = NO + NO MORE LIKELY FORWARD
309R. N2O + O = N + NO2	40.4	C	REVERSE ENDOTHERMIC
310F. N + N2O = NO + N2	-114.2	C	LOW CONCENTRATIONS FORWARD
310R. NO + N2 = N + N2O	114.2	C	REVERSE HIGHLY ENDOTHERMIC

REACTION	HR	NOTES	COMMENTS
311F. N + O + M = NO + M	-154.1	C	THIRD ORDER, LOW CONCENTRATION FORWARD
311R. NO + M = N + O + M	154.1	C	REVERSE HIGHLY ENDOTHERMIC
312F. N + O2 = NO + O	-32.1	A *	CONSIDER BOTH DIRECTIONS
312R. NO + O = N + O2	32.1	B *	FORWARD PART OF ZELDOVICH MECHANISM
313F. N + O2 + M = NO2 + M	-106.8	C	NOT LIKELY TO BE ELEMENTARY REACTION
313R. NO2 + M = N + O2 + M	106.8	C	
314F. NO + NO = N2 + O2	-43.2	C	FOUR-CENTER REACTION, SPIN HINDERED
314R. N2 + O2 = NO + NO	43.2	C	NO + NO = N2O + O FASTER EXPERIMENTALLY POSSIBLY BY AT LEAST A FACTOR OF 10
315F. NO + NO = N2O + O	38.9	B *	CONSIDER BOTH DIRECTIONS
315R. N2O + O = NO + NO	-38.9	B *	
316F. NO + NO2 = N2O + O2	-8.4	C	NOT LIKELY TO BE ELEMENTARY REACTION
316R. N2O + O2 = NO + NO2	8.4	C	
317F. NO + N2O = NO2 + N2	-34.9	C	FORWARD SLOW EXPERIMENTALLY
317R. NO2 + N2 = NO + N2O	34.9	C	REVERSE EVEN SLOWER
318F. NO + O + M = NO2 + M	-74.7	B *	CONSIDER FORWARD
318R. NO2 + M = NO + O + M	74.7	C	REVERSE ENDOTHERMIC
319F. NO + O2 = NO2 + O	47.3	B *	CONSIDER BOTH DIRECTIONS
319R. NO2 + O = NO + O2	-47.3	B *	FORWARD ENDOTHERMIC
320F. N2 + O + M = N2O + M	-39.9	B *	CONSIDER BOTH DIRECTIONS FOR ROLE OF N2O
320R. N2O + M = N2 + O + M	39.9	B *	

REACTION	HR	NOTES	COMMENTS
321F. N2 + O2 = N2O + O	82.2	C	FORWARD ENDOTHERMIC
321R. N2O + O = N2 + O2	-82.2	B *	CONSIDER REVERSE
322F. O + O + M = O2 + M	-122.0	A *	FORWARD TERMINATION REACTION
322R. O2 + M = O + O + M	122.0	C	REVERSE HIGHLY ENDOTHERMIC

7. RECOMMENDED RATES FOR REACTIONS FOUND IN THE LITERATURE AND ADDITIONAL REACTIONS OF POTENTIAL IMPORTANCE

In assembling recommendations for rates to be used, every attempt was made to use existing critical evaluations. This was done so as not to impose an additional layer of "slightly different" rate parameters to an already confusing array of differing opinions. Where alterations were required the nature of the change has been carefully indicated. Where critical evaluations were not available, use was made of reliable experimental data in the appropriate temperature range. Where data in the appropriate range were not available, reliable data outside the temperature range were extrapolated to the range of interest with a reasonable temperature dependence. Where no such data were available, literature estimates that seemed reasonable were used. And finally, where no literature estimates were available, reasonable estimates were made or were requested to be made as indicated.

In all cases, an attempt has been made to make the rates self consistent; i.e., to bring relative rates of competing reactions into line. While a number of rates have been altered for this purpose, there may still exist some that are not yet consistent with other similar reactions. In many cases recently revised, thermochemistry has an influence on estimated activation energies of reactions. In cases where older estimates have activation energies significantly below the endothermicity currently calculated, appropriate adjustments have been made.

The rates given are recommendations as of December 31, 1974.

The headings in this section are as follows:

Headings	Description
REACTION	Written in the direction of the recommendation. Each reaction is recommended in one direction only. Reverse rate may be obtained by using the expression for K_c in Section 4 $K_c = k_f/k_r$ Each reaction is numbered and direction indicated F = Forward of master reaction R = Reverse of master reaction * Flag to indicate that reaction should be considered in initial screening for combustion of methane/air at one atmosphere between 1500-2500K and 80-125% stoichiometric air.

Headings	Description
LOG A	Common logarithm of constant preexponential term. Uncertainty in parenthesis.
B	Exponent of T
C	Activation energy (kcal/mole) Uncertainty in parenthesis.
note:	$k = 10^{\text{LOG A}}\ T^{B}\ e^{-C/RT}$
COMMENTS	Basis for selection of recommendation. References listed in Section 9. Explanation of notes: Note A - No experimental data in literature, given rate selected as most reliable. Note B - No other estimate available in literature. Note C - No literature estimate available, estimated as indicated. Note D - Limited experimental data available, use with cauation. (J-P) - Johnston-Parr method. (EST) - Order of magnitude estimate. (EVAL) - Evaluation. (XPT) - Based on experimental determinations.
LOG K	Calculated from recommended expression at temperatures of 300, 1500, 2000 and 2500K (note: 300K is outside considered range, provided for reference only).

RECOMMENDED RATES 1500-2500K

REACTION		LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K			
1F. CH + CHN = CH2 + CN	*				NO RELIABLE ESTIMATE IN LITERATURE SEE SECTION 8				
2F. CH + CHO = CH2 + CO		10.5 (0.5)	0.7	1. (5.)	BASED ON T1 (J-P) NOTE A	11.5	12.6	12.7	12.8
3F. CH + CH2O = CH2 + CHO		11.0 (0.5)	0.7	4. (5.)	BASED ON T1 (J-P) NOTE A	9.8	12.6	12.9	13.0
5R. CH2 + CH2 = CH + CH3		11.7 (0.5)	0.5	6. (5.)	BASED ON T1 (EST) NOTE B	8.6	12.4	12.7	12.9
9F. CH +CH4 = CH2 + CH3	*	11.4 (0.5)	0.7	6. (5.)	BASED ON T1 (J-P) NOTE A	8.8	12.7	13.1	13.3
10F. CH + CO2 = CHO + CO	*	10.0 (0.5)	0.5	6. (5.)	BASED ON T1 (EST) NOTE B	6.9	10.7	11.0	11.2
11F. CH + H + M = CH2 + M		19.0 (0.5)	-1.	0.	EST BY METHOD OF B85 NOTE C	16.5	15.8	15.7	15.6
13R. CH2 + N = CH + HN		11.8 (0.5)	0.67	40.5 (5.)	BASED ON M8 (J-P) NOTE B	-16.0	8.0	9.6	10.5
17F. CH + HNO = CH2 + NO		11.8 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	13.0	13.4	13.5	13.5
20F. CH + HO = CHO + H	*	11.7 (0.5)	0.5	10. (5.)	BASED ON T1 (EST) NOTE B	5.7	11.8	12.3	12.5
21R. CH2 + O = CH + HO		11.3 (0.5)	0.7	26. (5.)	BASED ON M8 (J-P) NOTE A	-5.9	9.7	10.8	11.4
24F. CH + HO2 = CHO + HO		11.7 (0.5)	0.5	6. (5.)	BASED ON T1 (EST) NOTE B	8.6	12.4	12.7	12.9

RECOMMENDED RATES 1500-2500K

REACTION		LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K			
25F. CH + HO2 = CH2 + O2	*	10.0 (0.5)	0.5	15. (5.)	BASED ON T1 (EST) NOTE B	0.3	9.4	10.0	10.4
29R. CH2 + H = CH + H2	*	11.5 (0.5)	0.7	5. (5.)	BASED ON M8,T1 (J-P) WITH C=5 NOTE A	9.6	13.0	13.3	13.4
32R. CH2 + HO = CH + H2O	*	11.7 (0.5)	0.5	6. (5.)	BASED ON T1 (EST) NOTE B	8.6	12.4	12.7	12.9
38F. CH + NO = CHN + O	*				NO LITERATURE VALUE SEE SECTION 8				
39F. CH + NO = CHO + N	*				NO LITERATURE VALUE SEE SECTION 8				
47F. CH + N2 = CHN + N	*				NO LITERATURE VALUE SEE SECTION 8				
48F. CH + N2 = CN + HN	*				NO LITERATURE VALUE SEE SECTION 8				
52F. CH + O + M = CHO + M		16. (0.5)	-0.5	0. (5.)	BASED ON T1 (EST) NOTE B	14.8	14.4	14.3	14.3
53F. CH + O = CO + H	*	11.7 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) C=O BASED ON B85 NOTE B	12.9	13.3	13.4	13.4
54F. CH + O2 = CHO + O	*	11.7 (0.5)	0.5	6. (5.)	BASED ON T1 (EST) NOTE B	8.6	12.4	12.7	12.9
57R. CN + H + M = CHN + M		16.5 (0.5)	-0.5	0. (5.)	BASED ON T1 (EST) NOTE B	15.3	14.9	14.8	14.8
58R. CH2O + CN = CHN + CHO		11.1 (0.5)	0.7	3. (5.)	BASED ON T1 (J-P) NOTE B	10.6	12.9	13.1	13.2

RECOMMENDED RATES 1500-2500K

REACTION		LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K			
59R. CH3 + CN = CHN + CH2	*	11.0 (0.5)	0.7	3. (5.)	BASED ON T1 (J-P) NOTE B	10.5	12.8	13.0	13.1
61R. CH4 + CN = CHN + CH3	*	11.5 (0.5)	0.7	5. (5.)	BASED ON T1 (J-P) GOOD AGRMT W/B78	9.6	13.0	13.3	13.4
62R. CHO + CN = CHN + CO		11.3 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	12.5	12.9	13.0	13.0
64F. CHN + H = CN + H2	*				NO RELIABLE ESTIMATE IN LITERATURE SEE SECTION 8				
65R. CH2 + N2 = CHN + HN	*				NO LITERATURE VALUE SEE SECTION 8				
71F. CHN + HO = CN + H2O	*	11.3 (0.5)	0.6	5. (5.)	BASED ON T1 (J-P) NOTE B	9.1	12.5	12.7	12.9
81R. CN + HN = CHN + N		11.0 (0.5)	0.5	2. (5.)	BASED ON T1 (EST) NOTE B	10.8	12.3	12.4	12.5
83R. CN + HNO = CHN + NO		11.6 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	12.8	13.2	13.3	13.3
85F. CHN + O = CHO + N	*				NO LITERATURE VALUE SEE SECTION 8				
86F. CHN + O = CN + HO	*				NO RELIABLE ESTIMATE IN LITERATURE SEE SECTION 8				
92R. CO + H + M = CHO + M	*	20.2 (0.5)	-1.5	0.	EST BY METHOD OF B85 AGREES W/ EST OF J1	16.5	15.4	15.2	15.1
94F. CHO + CHO = CH2O + CO	*	11.2 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	12.4	12.8	12.9	12.9

RECOMMENDED RATES 1500-2500K

REACTION		LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K			
95F. CHO + CH2 = CH3 + CO	*	10.5 (0.5)	0.7	1. (5.)	BASED ON T1 (J-P) NOTE B	11.5	12.6	12.7	12.8
98R. CH2 + CH2O = CHO + CH3	*	10.5 (0.5)	0.5	6. (5.)	BASED ON T1 (EST) NOTE A	7.4	11.2	11.5	11.7
99F. CHO + CH3 = CH4 + CO	*	11.5 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	12.7	13.1	13.2	13.2
103R. CH2O + CH3 = CHO + CH4	*	10.0 (0.5)	0.5	6. (5.)	BASED ON T1 (EST) NOTE A	6.9	10.7	11.0	11.2
104R. CH2 + O = CHO + H	*	11.7 (0.5)	0.5	4. (5.)	BASED ON T1 (EST) NOTE B	10.0	12.7	12.9	13.0
105R. CH2O + M = CHO + H + M		17.5 (0.5)	0.	87. (5.)	BASED ON T1 (EST) NOTE B	-45.9	4.8	8.0	9.9
106F. CHO + H = CO + H2	*	12.2 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE A	13.4	13.8	13.9	13.9
111F. CHO + HNO = CH2O + NO		11.5 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	12.7	13.1	13.2	13.2
113R. CH2O + O = CHO + HO	*	11.0 (0.3)	1.	3.5 (2.)	BASED ON D22,H33,M27 FIT MODIF ARRHENIUS 300-2600K	10.9	13.7	13.9	14.1
114F. CHO + HO = CO + H2O	*				NO RELIABLE ESTIMATE IN LITERATURE SEE SECTION 8				
116F. CHO + HO2 = CH2O + O2	*				NO LITERATURE VALUE SEE SECTION 8				
119R. CH2O + H = CHO + H2	*	10.1 (0.5)	1.	3.2	BASED ON W40 USING B=1 FOR EXTRAP NO DATA ABOVE 1000K	10.2	12.8	13.1	13.2

RECOMMENDED RATES 1500-2500K

REACTION		LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K			
123R. CH2O + HO = CHO + H2O	*	10.5 (0.3)	1.	0. (3.)	BASED ON M30,P13,W2 K=13.0 AT 300 (M30) K=13.8 AT 1500 (W2) K=13.4 AT 1600 (P13)	13.0	13.7	13.8	13.9
127F. CHO + N = CO + HN	*	11.3 (0.5)	0.5	2. (5.)	BASED ON T1 (EST) NOTE B	11.1	12.6	12.7	12.8
129F. CHO + NO = CO + HNO	*	11.3 (0.5)	0.5	2. (5.)	BASED ON T1 (EST) NOTE B	11.1	12.6	12.7	12.8
133F. CHO + O = CO + HO	*				NO RELIABLE ESTIMATE IN LITERATURE SEE SECTION 8				
134F. CHO + O = CO2 + H	*				NO LITERATURE VALUE SEE SECTION 8				
135F. CHO + O2 = CO + HO2	*				NO LITERATURE VALUE SEE SECTION 8				
139F. CH2 + CH4 = CH3 + CH3	*	12.1 (0.5)	0.7	20. (5.)	BASED ON T1 (J-P) NOTE B	-0.7	11.4	12.2	12.7
144F. CH2 + HNO = CH3 + NO		11.8 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	13.0	13.4	13.5	13.5
146F. CH2 + HO = CH2O + H	*	13.	0.	5.	ESTIMATED NO RATE DATA	9.4	12.3	12.5	12.6
147F. CH2 + HO = CH3 + O	*	11.7 (0.5)	0.5	6. (5.)	BASED ON T1 (EST) NOTE B	8.6	12.4	12.7	12.9
150F. CH2 + HO2 = CH3 + O2	*				NO LITERATURE VALUE SEE SECTION 8				

RECOMMENDED RATES 1500-2500K

REACTION		LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K			
152F. CH2 + H2 = CH3 + H	*				NO RELIABLE ESTIMATE IN LITERATURE SEE SECTION 8				
155R. CH3 + HO = CH2 + H2O	*	10.8 (0.5)	0.7	2. (5.)	BASED ON T1 (J-P) NOTE A	11.1	12.7	12.9	13.0
159F. CH2 + NO = CH2O + N	*				NO LITERATURE VALUE SEE SECTION 8				
165F. CH2 + O2 = CH2O + O	*	11.7 (0.5)	0.5	7. (5.)	BASED ON T1 (EST) NOTE B	7.8	12.3	12.6	12.8
171R. CH3 + O = CH2O + H	*	13.7 (0.3)	0.	0.	BASED ON D22,M25,P13 K=13.7 AT 300 (M25) K=13.8 AT 1500 (P13) K=13.8 AT 2000 (D22)	13.7	13.7	13.7	13.7
172R. CH3O + M = CH2O + H +M	*				CH3O NOT IN SURVEY SEE SECTION 8				
174R. CH3O + N = CH2O + HN	*				CH3O NOT IN SURVEY SEE SECTION 8				
177R. CH3 + O2 = CH2O + HO	*	13.5 (0.5)	0.	20. (10.)	BASED ON B45,B64,B76 W/ EST ACTIV ENERGY	-1.1	10.6	11.3	11.8
178R. CH3O + O = CH2O + HO	*				CH3O NOT IN SURVEY SEE SECTION 8				
179R. CH3O + O2 = CH2O + HO2	*				CH3O NOT IN SURVEY SEE SECTION 8				
181R. CH3O + H = CH2O + H2	*				CH3O NOT IN SURVEY SEE SECTION 8				

RECOMMENDED RATES 1500-2500K

REACTION		LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K			
184R. CH3O + HO = CH2O + H2O	*				CH3O NOT IN SURVEY SEE SECTION 8				
191R. CH4 + M = CH3 + H + M	*	17.3 (0.3)	0.	87.5 (2.)	BASED ON H32 RECENT EXPERIMENT	-46.4	4.6	7.7	9.7
194F. CH3 + HNO = CH4 + NO		11.7 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	12.9	13.3	13.4	13.4
195F. CH3 + HO = CH3O + H	*	12.8	0.	0.	COMPARES W/ 155R NO RATE DATA	12.8	12.8	12.8	12.8
196R. CH4 + O = CH3 + HO	*	13.3 (0.2)	0.	9. (1.)	BASED ON H25 CRIT EVAL 350-2000K	6.7	12.0	12.3	12.5
198F. CH3 + HO2 = CH4 + O2	*	11.0 (0.5)	0.5	6. (5.)	BASED ON T1 (EST)	7.9	11.7	12.0	12.2
199R. CH4 + H = CH3 + H2	*	13.8 (0.3)	0.	11.9 (0.3)	BASED ON REFS B64,K34,S1,S33,W30	5.1	12.1	12.5	12.8
201R. CH4 + HO = CH3 + H2O	*	13.5 (0.3)	0.	5. (0.5)	BASED ON REFS B64,D25,S33,W31	9.9	12.8	13.0	13.1
206F. CH3 + O2 = CH3O + O	*				CH3O NOT IN SURVEY SEE SECTION 8				
216F. CN + NO = CO + N2	*	11.5 (0.5)	0.	0. (5.)	BASED ON B78 (XPT) ASSUME ACT ENERGY=0 NOTE D	11.5	11.5	11.5	11.5
219F. CN + O = CO + N	*	12. (0.5)	0.	0. (5.)	BASED ON B78,R5 ASSUME ACT ENERGY=0 NOTE D	12.0	12.0	12.0	12.0
220F. CN + O2 = CO + NO	*	11.5 (0.5)	0.	0. (10.)	BASED ON B86 (XPT) UPPER LIMIT AT 298K ASSUME ACT ENERGY=0 NOTE D	11.5	11.5	11.5	11.5

RECOMMENDED RATES 1500-2500K

						TEMP, KELVIN			
REACTION	LOG A	B	C	COMMENTS	300	1500	2000	2500
						LOG K		
222F. CO + HNO = CO2 + HN	11.0 (0.5)	0.5	7. (5.)	BASED ON T1 (EST) NOTE B	7.1	11.6	11.9	12.1
223F. CO + HO = CO2 + H *	7.18	1.3	0.76	BASED ON B98 FIT TO XPTL DATA FROM 300-2000K	9.8	11.2	11.4	11.5
224F. CO + HO2 = CO2 + HO	11. (0.5)	0.	10. (3.)	BASED ON L16 (EVAL)	3.7	9.5	9.9	10.1
225R. CO2 + H2 = CO + H2O	9.0 (0.5)	0.5	15. (5.)	BASED ON T1 (EST) NOTE B	-0.7	8.4	9.0	9.4
226R. CO2 + N = CO + NO	11.3 (1.)	0.5	30. (20.)	BASED ON T1 WITH HIGHER C SPIN HINDERED	-9.3	8.5	9.7	10.4
227F. CO + NO2 = CO2 + NO	12.3 (0.3)	0.	30. (3.)	BASED ON K45	-9.6	7.9	9.0	9.7
228F. CO + N2O = CO2 + N2	11.0 (0.3)	0.	20. (3.)	BASED ON L9,M29 NOTE D	-3.6	8.1	8.8	9.3
229R. CO2 + M = CO + O + M *	15. (0.3)	0.	100. (5.)	BASED ON C26,01 COMPLEX REACTION	-57.9	0.4	4.1	6.3
230F. CO + O2 = CO2 + O *	12.5 (0.5)	0.	50. (10.)	BASED ON D20,D22,S10 HI T DATA FAIR AGRMT	-23.9	5.2	7.0	8.1
231R. H2 + M = H + H + M *	14.3 (0.3)	0.	96. (4.)	BASED ON B88, M = AR CRITICAL EVALUATION	-55.6	0.3	3.8	5.9
232F. H + HN = H2 + N *	11.8 (0.2)	0.5	8. (5.)	BASED ON B97 (EST) TRANS STATE CORLAT	7.2	12.2	12.6	12.8
233F. H + HNO = HN + HO *	11.3 (0.5)	0.5	23. (5.)	BASED ON T1 (EST) W/ HIGHER C NOTE B	-4.2	9.5	10.4	11.0

RECOMMENDED RATES 1500-2500K

REACTION	LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
					LOG K			
234F. H + HNO = H2 + NO	* 13. (0.2)	0.	2.5 (2.)	BASED ON S1 EVALUATION 200-2000K	11.2	12.6	12.7	12.8
236F. H + HO = H2 + O	* 9.9 (0.2)	1.	7. (0.3)	BASED ON B88 EVALUATION 400-2000K	7.3	12.1	12.4	12.7
237F. H + HO + M = H2O + M	* 22.3 (0.3)	-2.	0.	BASED ON B88, M = N2 CRIT EVAL 1000-3000K	17.3	15.9	15.7	15.5
238F. H + HO2 = HO + HO	* 14.4 (0.3)	0.	1.9 (1.)	BASED ON L16 EVALUATION 300-1000K	13.0	14.1	14.2	14.2
239F. H + HO2 = H2 + O2	* 13.4 (0.3)	0.	0.7 (1.)	BASED ON L16 EVALUATION 300-1000K	12.9	13.3	13.3	13.3
240F. H + HO2 = H2O + O	13.0 (1.)	0.	1. (1.)	BASED ON L16 EVALUATION 300-1000K	12.3	12.9	12.9	12.9
241R. HO + H2 = H + H2O	* 13.4 (0.1)	0.	5.2 (0.2)	BASED ON B88 EVALUATION 300-2500K	9.6	12.6	12.8	12.9
242F. H + N + M = HN + M	17.4 (1.)	-0.5	0. (2.)	BASED ON T1 (EST) AND B91 (XPT)	16.2	15.8	15.7	15.7
243R. HN + O = H + NO	* 11.8 (0.2)	0.5	0. (5.)	BASED ON B97 TRANS STATE CORELAT	13.0	13.4	13.5	13.5
244F. H + NO + M = HNO + M	15.7 (0.3)	0.	-0.6 (0.3)	BASED ON B90, M = H2 EVALUATION 230-700K	16.1	15.8	15.8	15.8
245R. HO + N = H + NO	* 11.8 (0.3)	0.5	0. (3.)	BASED ON B97 TRANS STATE COREL AGREES W/ REF C8 XPT	13.0	13.4	13.5	13.5
247R. HNO + O = H + NO2	10.7 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	11.9	12.3	12.4	12.4

RECOMMENDED RATES 1500-2500K

REACTION	LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
					LOG K			
248F. H + NO2 = HO + NO	* 14.5 (0.3)	0.	1.5 (1.)	BASED ON B90 EVALUATION 300-630K	13.4	14.3	14.3	14.4
250R. HN + N = H + N2	11.8 (0.2)	0.5	0. (3.)	BASED ON B97 TRANS STATE CORELAT	13.0	13.4	13.5	13.5
251F. H + N2O = HN + NO	11.0 (0.5)	0.5	30. (5.)	BASED ON T1 (EST) NOTE B	-9.6	8.2	9.4	10.1
252R. HNO + N = H + N2O	10.7 (0.5)	0.5	3. (5.)	BASED ON T1 (EST) NOTE B	9.8	11.9	12.0	12.1
253F. H + N2O = HO + N2	* 13.9 (0.2)	0.	15. (1.)	BASED ON B90 EVALUATION 700-2500K	3.0	11.7	12.3	12.6
254F. H + O + M = HO + M	* 15.9 (1.)	0.	0.	BASED ON S30 LIMITED DATA	15.9	15.9	15.9	15.9
255R. HO + O = H + O2	* 13.4 (0.3)	0.	0.	BASED ON W31 EVALUATION 300-2000K	13.4	13.4	13.4	13.4
256F. H + O2 + M = HO2 + M	* 15.3 (0.1)	0.	1. (0.5)	BASED ON B88, M = N2 EVALUATION 300-2000K	14.6	15.2	15.2	15.2
257F. HN + HN = H2 + N2	13.0 (1.)	0.	0.	ESTIMATE OF D8 REDUCED BY 10X	13.0	13.0	13.0	13.0
261F. HN + HO = H2O + N	* 11.7 (0.5)	0.5	2. (5.)	BASED ON T1 (EST) NOTE B	11.5	13.0	13.1	13.2
266R. HNO + N = HN + NO	11.0 (0.5)	0.5	2. (5.)	BASED ON T1 (EST) NOTE B	10.8	12.3	12.4	12.5
268F. HN + NO2 = HNO + NO	11.3 (0.5)	0.5	5. (5.)	BASED ON T1 (EST) NOTE B	8.9	12.2	12.4	12.6

RECOMMENDED RATES 1500-2500K

	REACTION		LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
								LOG K		
271F.	HN + H2O = HNO + H2		11.0 (0.5)	0.5	3. (5.)	BASED ON T1 (EST) NOTE B	10.1	12.2	12.3	12.4
272F.	HN + O + M = HNO + M		16.0 (0.5)	-0.5	0. (5.)	BASED ON T1 (EST) NOTE B	14.8	14.4	14.3	14.3
273F.	HN + O = HO + N		11.5 (0.3)	0.5	8. (3.)	BASED ON B97 TRANS STATE CORELAT	6.9	11.9	12.3	12.5
274R.	HNO + O = HN + O2	*	11.0 (0.5)	0.5	7. (5.)	BASED ON T1 (EST) NOTE B	7.1	11.6	11.9	12.1
276R.	HO2 + N = HN + O2		11.0 (0.5)	0.	0. (5.)	BASED ON K25 (XPT) LOWER LIMIT AT 300K NOTE D	11.0	11.0	11.0	11.0
277R.	HO + N + M = HNO + M		15.0	-0.5	0.	BASED ON T1 (EST) NOTE B	13.8	13.4	13.3	13.3
280F.	HNO + HO = H2O + NO	*	13.5 (0.5)	0.	0. (2.)	BASED ON B46,H39	13.5	13.5	13.5	13.5
283F.	HNO + NO = HO + N2O		12.3 (0.3)	0.	26. (5.)	BASED ON W23 REEVALUATION OF EXISTING H2-NO DATA	-6.6	8.5	9.5	10.0
286F.	HNO + O = HO + NO	*	11.7 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	12.9	13.3	13.4	13.4
290R.	H2 + O2 = HO + HO		12.4 (1.)	0.	39. (10.)	BASED ON R2 (XPT) NOTE D	-16.0	6.7	8.1	9.0
291F.	HO + HO = H2O + O	*	12.8 (0.3)	0.	1. (0.5)	BASED ON B88 EVALUATION 300-2000K	12.1	12.7	12.7	12.7
292F.	HO + HO2 = H2O + O2	*	13.7 (0.5)	0.	1. (1.)	BASED ON L16 EVALUATION 300-1000K	13.0	13.6	13.6	13.6

RECOMMENDED RATES 1500-2500K

REACTION	LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
					LOG K			
295R. HO2 + NO = HO + NO2	* 13.0 (0.3)	0.	3. (3.)	BASED ON L16 USING ACTIV ENERGY=3	10.8	12.6	12.7	12.7
296F. HO + N2O = HO2 + N2	* 13.5	0.	15.	ESTIMATE NO RATE DATA	2.6	11.3	11.9	12.2
297F. HO + O + M = HO2 + M	* 17.0 (2.)	0.	0.	BASED ON REF B24 NO VALID DATA (B88)	17.0	17.0	17.0	17.0
298R. HO2 + O = HO + O2	* 13.7 (0.3)	0.	1. (1.)	BASED ON L16 LIMITED DATA	13.0	13.6	13.6	13.6
304R. N2 + M = N + N + M	21.6 (0.5)	-1.6	225. (1.)	BASED ON B90, M = N2 EVALUATION	-146.3	-16.3	-8.3	-3.5
305F. N + NO = N2 + O	* 13.2 (0.3)	0.	0.	BASED ON B90 EVALUATION 300-5000K	13.2	13.2	13.2	13.2
306F. N + NO + M = N2O + M				NO EVIDENCE OF IT REF S30				
307F. N + NO2 = NO + NO	* 12.6 (0.7)	0.	0. (3.)	BASED ON P10 (XPT) ASSUME ACT ENERGY=0 NOTE D	12.6	12.6	12.6	12.6
308F. N + NO2 = N2 + O2	12.0 (0.3)	0.	0. (3.)	BASED ON P10 (XPT) ASSUME ACT ENERGY=0 NOTE D	12.0	12.0	12.0	12.0
309F. N + NO2 = N2O + O	12.7 (0.3)	0.	0. (3.)	BASED ON P10 (XPT) ASSUME ACT ENERGY=0 NOTE D	12.7	12.7	12.7	12.7
310F. N+N2O = NO + N2	8.7 (0.5)	0.	10. (5.)	BASED ON B19 (EST) NOTE A	1.4	7.2	7.6	7.8

RECOMMENDED RATES 1500-2500K

	REACTION		LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
							LOG K			
311R.	NO + M = N + O + M		20.6 (0.5)	-1.5	150. (5.)	BASED ON C19, W6 M = AR, N2, O2 USE WITH CAUTION	-92.4	-6.0	-0.7	2.4
312F.	N + O2 = NO + O	*	9.8 (0.3)	1.	6.3 (0.3)	BASED ON B90 EVALUATION 300-3000K	7.7	12.1	12.4	12.6
314F.	NO + NO = N2 + O2					SPIN HINDERED OLD EXPERIMENTS ACTUALLY MEASURED NO + NO = N2O + O				
315R.	N2O + O = NO + NO	*	14.0 (0.3)	0.	28. (3.)	BASED ON B90 EVAL 1200-200K SAME RATE AS N2O + O = N2 + O2	-6.4	9.9	10.9	11.6
316F.	NO + NO2 = N2O + O2		12.0 (2.)	0.	60.	BASED ON B19 (EST) NOTE A	-31.7	3.3	5.4	6.8
317F.	NO + N2O = NO2 + N2		14.3 (1.)	0.	50.	BASED ON F28,K30 NOTE D	-22.1	7.0	8.8	9.9
318R.	NO2 + M = NO + O + M	*	16.0 (0.1)	0.	65. (1.5)	BASED ON B90, T4 M=AR,O2 1400-2400K	-31.4	6.5	8.9	10.3
319R.	NO2 + O = NO + O2	*	13.0 (0.3)	0.	1. (0.5)	BASED ON B90 EVALUATION 300-600K NO HI TEMP DATA	12.3	12.9	12.9	12.9
320R.	N2O + M = N2 + O + M	*	14.7 (0.2)	0.	58. (3.)	BASED ON B90, M = AR EVAL 1300-2500K	-27.6	6.2	8.4	9.6
321R.	N2O + O = N2 + O2	*	14. (0.4)	0.	28. (4.)	BASED ON B90 EVAL 1200-2500K SAME RATE AS N2O + O = NO + NO	-6.4	9.9	10.9	11.6

RECOMMENDED RATES 1500-2500K

REACTION	LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
					LOG K			
322R. O2 + M = O + O + M	* 18.4	-1.	118.7	BASED ON J4, M = AR	-70.6	-2.1	2.1	4.6
	* 19.4 (0.3)	-1.	118.7	BASED ON J4, M = O2 CRITICAL EVALUATION WIDE TEMP RANGE	-69.6	-1.1	3.1	5.6

8. ESTIMATES FOR ADDITIONAL REACTIONS*

A number of the reactions reported in the previous section as being of potential importance had not been reported in the literature. In addition, several of the rates reported in the literature were of questionable accuracy. The rates given in this section were estimated by the Physical Sciences Division of Stanford Research Institute under EPA Grant No. R-800798. These rates appear in Report EPA-600/2-75-019, "Estimating the Kinetics of Combustion".

The headings in this section are similar to those in Section 7.

- - - - -

* Estimates by S. W. Benson, D. M. Golden and R. Shaw, Stanford Research Institute as indicated in the text.

RECOMMENDED RATES 1500-2500K

REACTION	LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K		
1R. CH2 + CN = CH + CHN	12.5	0.	5. (3.)		8.9	11.8	12.0	12.1
38F. CH + NO = CHN + O	12.3	0.	0. (2.)		12.3	12.3	12.3	12.3
39F. CH + NO = CHO + N	13.2	0.	10. (6.)	SPIN RETARDED	5.9	11.7	12.1	12.3
47F. CH + N2 = CHN + N	* 13.3	0.	13. (6.)	ORIG SRI ESTIMATE SPIN RETARDED	3.8	11.4	11.9	12.2
	11.0	0.	19.	REVISED SRI ESTIMATE	-2.8	8.2	8.9	9.3
48F. CH + N2 = CN + HN	14.5	0.	92. (20.)	FOUR-CENTER BASED ON EST ACTIV ENERGY 40. FOR REV	-52.5	1.1	4.4	6.5
64R. CN + H2 = CHN + H	12.5	0.	5. (3.)		8.9	11.8	12.0	12.1
65R. CH2 + N2 = CHN + HN	14.0	0.	70. (20.)	BASED ON EST ACTIV ENERGY 40. FOR REV	-37.0	3.8	6.4	7.9
85R. CHO + N = CHN + O	14.0	0.	0. (2.)		14.0	14.0	14.0	14.0
86R. CN + HO = CHN + O	12.5	0.	3. (3.)		10.3	12.1	12.2	12.2
98R. CH2 + CH2O = CH3 + CHO	11.3	0.	6.5 (3.)		6.6	10.4	10.6	10.7
114F. CHO + HO = CO + H2O	10.5	1.	0. (3.)		13.0	13.7	13.8	13.9
116F. CHO + HO2 = CH2O + O2	14.0	0.	3. (3.)		11.8	13.6	13.7	13.7

RECOMMENDED RATES 1500-2500K

REACTION	LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
					LOG K			
133F. CHO + O = CO + HO	11.5	1.	0.5 (3.)		13.6	14.6	14.7	14.9
134F. CHO + O = CO2 + H	11.5	0.	0. (3.)		11.5	11.5	11.5	11.5
135F. CHO + O2 = CO + HO2	12.2	0.	7. (3.)		7.1	11.2	11.4	11.6
150R. CH3 + O2 = CH2 + HO2	12.5	0.	69.5 (3.)	BASED ON EST ACTIV ENERGY 7. FOR REV	-38.1	2.4	4.9	6.4
152F. CH2 + H2 = CH3 + H	12.5	0.	7. (3.)		7.4	11.5	11.7	11.9
159F. CH2 + NO = CH2O + N	12.2	0.	7. (4.)		7.1	11.2	11.4	11.6
172R. CH3O + M = CH2O + H + M	40.6	-7.5	22.6 (3.)	BASED ON HINSHELWOOD -LINDEMAN THEORY	5.6	13.5	13.4	13.1
174R. CH3O + N = CH2O + HN	14.0	0.	0. (3.)		14.0	14.0	14.0	14.0
178R. CH3O + O = CH2O + HO	14.0	0.	0. (3.)		14.0	14.0	14.0	14.0
179R. CH3O + O2 = CH2O + HO2	12.0	0.	6. (3.)		7.6	11.1	11.3	11.5
181R. CH3O + H = CH2O + H2	14.0	0.	0. (3.)		14.0	14.0	14.0	14.0
184R. CH3O + HO = CH2O + H2O	13.5	0.	0. (3.)		13.5	13.5	13.5	13.5
206F. CH3 + O2 = CH3O + O	12.5	0.	30. (3.)		-9.4	8.1	9.2	9.9

9. REFERENCES

The references indicated elsewhere in this report are listed in this section with a letter-number code. The letter indicates the initial of the first author while the number sorting is done by accession order rather than alphabetically. This provides a semi-sorted reference list which allows updating of the data base without renumbering the references.

REFERENCES

A 1. AZATYAN, V. V., NALBANDYAN, A. B., AND TSUI, M. Y., KINETICS AND CATALYSIS 5, 177 (1964).

A 2. ASHMORE, P. G., AND TYLER, B. J., TRANS. FARADAY SOC. 58, 1108 (1962).

A 3. AZATYAN, V. V., VOEVODSKII, V. V., AND NALBANDYAN, A. B., KINETICS AND CATALYSIS 2, 315 (1961).

A 4. AZATYAN, V. V., NALBANDYAN, A. B. AND MENG-YUAN, T., DOKLADY CHEMISTRY 147, 361 (1962).

A 5. AGANESYAN, K. T., AND NALBANDYAN, A. B., DOKLADY PHYS. CHEM. 160, 18 (1965).

A 6. AZATYAN, V. V., VOEVODSKII, V. V., AND NALBANDYAN, A. B., DOKLADY AKAD. NAUK S.S.S.R. 132, 864 (1960).

A 7. ASABA, T., GARDINER, W. C., AND STUBBEMAN, R. F. TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 295 (1965).

A 8. AVRAMENKO, L. I., AND LORENTSO, R. V., DOKL. AKAD. NAUK. USSR 67, 867 (1949).

A 9. AVRAMENKO, L. I., AND LORENTSO, R. V., ZHUR. FIZ. KHIM. 24, 207 (1950).

A 10. AZATYAN, V. V., ROMANOVICH, L. B., AND DYSOEVA, S. G., COMBUSTION, EXPLOSIONS AND SHOCK WAVES 3, 46 (1967).

A 11. AVRAMENKO, L. I., ZH. FIZ. KHIM. 21, 1135 (1947).

A 12. AZATYAN, V. V., ANDREEVA, N. E., INTEZAROVA, E. I., AND KONDRATIEV, V. N., KINETICS AND CATALYSIS 11, 244 (1970).

A 13. ATALLAH, S., AIR FORCE CAMBRIDGE RESEARCH LABS., AFCRL 761, AD 267 017 (1961).

A 14. AVRAMENKO, L. I., AND KOLESNIKOVA, R. V., ADVANCES IN PHOTOCHEMISTRY 2, 25, INTERSCIENCE (1964).

A 15. AVRAMENKO, L. I., AND LORENZO, R. V., DOKL. AKAD. NAUK. SSSR 69, 205 (1949).

A 16. ASHMORE P. G., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 377 (1965).

A 17. AZATYAN, V. V., ROMANOVICH, L. B., AND SYSOEVA, S. G., COMBUSTION, EXPLOSION, AND SHOCK WAVES 3, 46 (1967).

REFERENCES (CONT'D)

A 18. APPLETON, J. P., STEINBERG, AND LIQUORNIK, D. J., J. CHEM. PHYS. 48, 599 (1968).

A 19. ALBERS, E. A., HOYERMAN, K., WAGNER, H. GG., AND WOLFRUM, J., THIRTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 81 (1971).

A 20. ALLEN, R. A., KECK, J. C., AND CAMM, J. C., PHYS. FLUIDS 5, 284 (1962).

A 21. AHUMADA, J. J., MICHAEL, J. V., AND OSBORNE, D. T., J. CHEM. PHYS. 57, 3736 (1972).

REFERENCES (CONT'D)

B 1. BALDWIN, R. R., AND COWE, D. W., TRANS. FARADAY SOC. 58, 1768 (1962).

B 2. BRENNEN, W. R., GAY, I. D., GLASS, G. P., AND NIKI H., J. CHEM. PHYS. 43, 2659 (1965).

B 3. BERLIE, M. R., AND LE ROY, D. J., CAN. J. CHEM. 32, 650 (1954).

B 4. BAHN, G. S., PYRODYNAMICS 6, 101 (1968).

B 5. BAULCH, D. L., DRYSDALE, D. D., AND LLOYD, A. C., DEPT. OF PHYSICAL CHEMISTRY, THE UNIVERSITY, LEEDS, ENGLAND, HIGH TEMPERATURE REACTION RATE DATA REPORT NO. 1 (MAY 1968).

B 6. BALDWIN, R. R., TRANS. FARADAY SOC. 52, 1344 (1956).

B 7. BALDWIN, R. R., AND SIMMONS, R. F., TRANS. FARADAY SOC. 53, 964 (1957).

B 8. BALDWIN, R. R., AND MELVIN, A., J. CHEM. SOC. (LONDON) 1785 (1964).

B 9. BALDWIN, R. R., CORNEY, N. S., AND SIMMONS, R. F., FIFTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 502 (1955).

B 10. BENSON, S. W. AND JAIN, D. V. S., J. CHEM. PHYS. 31, 1008 (1959).

B 11. BAHN, G. S., PYRODYNAMICS 2, 197 (1965).

B 12. BALDWIN, R. R., NINTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 667 (1963).

B 13. BASCOMBE, K. H., EXPLOSIVES RESEARCH AND DEVELOPMENT ESTABLISHMENT, WALTHAM ABBEY, ESSEX, ENGLAND, REPORT E.R.D.E. 1/S165 (1965).

B 14. BALDWIN, R. R., DORAN, P. AND MAYOR, L., EIGHTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 103 (1962).

B 15. BALAKHNIN, V. P., GERSHENZON, YU. M., KONDRATIEV, V. N., AND NALBANDYAN, A. B., DOKLADY PHYS. CHEM. 170, 659 (1966).

B 16. BROWNE, W. G., WHITE, D. R., AND SMOOKLER, G. R., TWELFTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 557 (1968).

B 17. BENSON, S. W., IND. ENG. CHEM. 56, 18 (1964).

B 18. BROKAW, R. S., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 1063 (1967).

REFERENCES (CONT'D)

B 19. BORTNER, M. H., GENERAL ELECTRIC MISSILE AND SPACE DIVISION REPORT NO. R63SD63 (AUGUST 1963).

B 20. BAHN, G. S., PYRODYNAMICS 1, 271 (1964).

B 21. BURGESS, R. H., AND ROBB, J. C., CHEM. SOC. SPECIAL PUBLICATION 9, 167 (1957).

B 22. BASEVICH, V. YA., AND KOGAKO, S. M., KINETICS AND CATALYSIS 6, 17 (1965).

B 23. BATES, D. R., AND NICOLET, M., PLANET. SPACE SCI. 13, 905 (1965).

B 24. BAHN, G. S., PYRODYNAMICS 2, 315 (1965).

B 25. BORTNER, M. H., ARC. 28, 807 (1967).

B 26. BENSON, S. W., J. CHEM. PHYS. 38, 1251 (1963).

B 27. BORTNER, M. H., AIR FORCE CAMBRIDGE RESEARCH LABS., AFCRL-65-392, AD 619 253 (1965).

B 28. BALDWIN, R. R., JACKSON, D., WALKER, R. W., AND WEBSTER, S. J., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 423 (1964).

B 29. BORTNER, M. H., TENTATIVE SUGGESTED STANDARD RATE CONSTANTS, GEN. ELECTRIC CO (1967).

B 30. BULEWICZ, E. M., AND SUGDEN, T. M., TRANS. FARADAY SOC. 54, 1855 (1958).

B 31. BLACK, G., AND PORTER, G., PROC. ROY. SOC. (LONDON), SERIES A 266, 185 (1962).

B 32. BRABBS, T. A., AND BELLES, F. E., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 125 (1967).

B 33. BRABBS, T. A., BELLES, F. E., AND ZLATARICH, S. A., J. CHEM. PHYS. 38, 1939 (1963).

B 34. BORTNER, M. H., AND GOLDEN, J. A., GENERAL ELECTRIC CO. R61SD23 (1961).

B 35. BORTNER, M. H., R63SD34, GENERAL ELECTRIC MISSILE AND SPACE DIVISION (1963).

B 36. BECKER, K. H., GROTH, W., AND KLEY, D., Z. NATURFORSCHUNG, 24A, 1280 (1969).

REFERENCES (CONT'D)

B 37. BORTNER, M. H., AND POVARD, V. D., AIR FORCE CAMBRIDGE RESEARCH LABS., AFCRL-64-496, AD 603 509 (1964).

B 38. BORTNER, M. H., NBS TECHNICAL NOTE 484 (MAY 1969).

B 39. BARTH, C. A., ANN. GEOPHYS. 20, 182 (1964).

B 40. BARTH, C. A., RESEARCH SUMMARY NO. 36-9, I, 64, JET PROPULSION LABORATORY, PASADENA (1961).

B 41. BLAIR, L. S. AND GETZINGER, R. W., COMBUSTION AND FLAME 14, 5 (1970).

B 42. BRAINERD, J. J. AND LEVINSKY, E. S., AIAA J. 1, 2474 (1963).

B 43. BRADLEY, J. N., AND KISTIAKOWSKY, G. B., J. CHEM. PHYS. 35, 256 (1961).

B 44. BORISOV, A. A., KINETICS AND CATALYSIS 9, 399 (1968).

B 45. BARNARD, J., AND HONEYMAN, T., PROC. ROY. SOC. A279, 236 (1964).

B 46. BULEWICZ, E. M., AND SUGDEN, T. M. , PROC. ROY. SOC. A277, 143 (1964).

B 47. BROWN, F., AND CRIST, R., J. CHEM. PHYS. 9, 840 (1941).

B 48. BALDWIN, R. R., AND MAYOR, L., TRANS. FARADAY SOC. 56, 80 (1960).

B 49. BLUNDELL, R. V., COOK, W. G. A., HOARE, D. E., AND MILNE, G. S., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 445 (1965).

B 50. BAULCH, D. L., DRYSDALE, D. D., AND LLOYD, A. C., DEPT. OF PHYSICAL CHEMISTRY, THE UNIVERSITY, LEEDS, ENGLAND, HIGH TEMPERATURE REACTION RATE DATA REPORT NO. 2 (NOV 1968).

B 51. BAULCH, D. L., DRYSDALE, D. D., AND LLOYD, A. C., DEPT. OF PHYSICAL CHEMISTRY, THE UNIVERSITY, LEEDS, ENGLAND, HIGH TEMPERATURE REACTION RATE DATA REPORT NO. 3 (APR 1969).

B 52. BAULCH, D. L., DRYSDALE, D. D., HORNE, D. G., AND LLOYD, A. C., DEPT. OF PHYSICAL CHEMISTRY, THE UNIVERSITY, LEEDS, HIGH TEMPERATURE REACTION RATE DATA REPORT NO. 4 (DEC 1969).

B 53. BAULCH, D. L., DRYSDALE, D. D., AND HORNE, D. G., DEPT. OF PHYSICAL CHEMISTRY, THE UNIVERSITY, LEEDS, ENGLAND, HIGH TEMPERATURE REACTION RATE DATA REPORT NO. 5 (JUL 1970).

REFERENCES (CONT'D)

B 54. BAHN, G. S., PYRODYNAMICS 2, 91 (1965).

B 55. BAHN, G. S., PYRODYNAMICS 3, 245 (1965).

B 56. BAHN, G. S., PYRODYNAMICS 1, 147 (1964).

B 57. BAHN, G. S., PYRODYNAMICS 1, 335 (1964).

B 58. BASCOMBE, K. N., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 55 (1965).

B 59. BENSON, S. W. AND DEMORE, W. B., ANN. REVIEW PHYS. CHEM. 16, 397 (1965).

B 60. BALDWIN, R. R., ROSSITER, B. N., AND WALKER, R. W., TRANS. FARADAY SOC. 65, 1044 (1969).

B 61. BREEN, J. E. AND GLASS, G. P., J. CHEM. PHYS. 52, 1082 (1970).

B 62. BECKER, K. H., GROTH, W., AND KLEY, D., Z. NATURFORSCH. A 24, 1840 (1969).

B 63. BURCAT, A. AND LIFSHITZ, A., J. PHYS. CHEM. 74, 263 (1970).

B 64. BALDWIN, R. R., HOPKINS, D. E., NORRIS, A. C., AND WALKER, R. W., COMBUSTION AND FLAME 15, 33 (1970).

B 65. BOWMAN, C. T., COMBUSTION SCI. TECH. 2, 161 (1970).

B 66. BOWMAN, C. T. AND SEERY, D. J., PAPER PRESENTED AT SYMPOSIUM ON EMISSIONS FROM CONTINUOUS COMBUSTION SYSTEMS (SEPTEMBER 1971).

B 67. BOWMAN, C. T. AND KESTEN, A. S., PAPER NO. WSCI 71-28, FALL MEETING, WESTERN SECTION OF THE COMBUSTION INSTITUTE (OCTOBER 1971).

B 68. BOWMAN C. T., COMBUSTION SCI. TECH. 3, 37 (1971).

B 69. BULLOCK, G. E., AND COOPER, R., TRANS. FARADAY SOC. 67,3258 (1971).

B 70. BELLES, F. E., NASA SPECIAL PUBLICATION SP-239, P.89 (1970).

B 71. BRABBS, T. A., BELLES, F. E., AND BROKAW, R.S., NASA SPECIAL PUBLICATION SP-239, P.105 (1970).

B 72. BENNET, J. E. AND BLACKMORE, D. R., PROC. ROY. SOC. A305, 553 (1968).

REFERENCES (CONT'D)

B 73. BALDWIN, R. R., NORRIS, A. C., AND WALKER, R. W., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 889 (1967).

B 74. BALAKHIN, V. P., EGOROV, V. I., VAN TIGGELEN, P. J., AZATYAN, V. V., GERSHENZON, YU. M., AND KONDRATIEV, V. N., KINETICS AND CATALYSIS 9, 559 (1968).

B 75. BORISOV, A. A., KINETICS AND CATALYSIS 9, 399 (1968).

B 76. BALDWIN, R. R., EVERETT, C. J., HOPKINS, D. E., AND WALKER, R. W., ADVAN. CHEM. SER. 76, 124 (1968).

B 77. BALDWIN, R. R., JACKSON, D., MELVIN, A. AND ROSSITER, B. N., INT. J. CHEM. KINETICS 4, 277 (1972).

B 78. BODEN, J. C. AND THRUSH, B. A., PROC. ROY. SOC. A305, 107 (1968).

B 79. BENNETT, J. E. AND BLACKMORE, D. R., THIRTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 51 (1971).

B 80. BRABBS, T. A., BELLES, F. E., AND BROKAW, R. S., THIRTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 129 (1971).

B 81. BYRON, S. R., J. CHEM. PHYS. 44, 1378 (1966).

B 82. BALAKHNIN, V. P., EGOROV, V. I., AND KONDRATIEV, V. N., DOKLADY PHYS. CHEM. 193, 529 (1970).

B 83. BROWNE, W. G., WHITE, D. R., AND SMOOKLER, G. R., TWELFTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 557 (1969).

B 84. BORTNER, M. H., AIR FORCE CAMBRIDGE RESEARCH LABS, AFCRL 65-367, AD 619 254 (1965).

B 85. BENSON, S. W., GOLDEN, D. M., AND SHAW, R., INTERIM ANNUAL REPORT, EPA GRANT NO. 800798, AUGUST, 1973.

B 86. BASCO, N., PROC. ROY. SOC. A283, 302 (1965).

B 87. BYRON, S. R., J. CHEM. PHYS. 30, 1380 (1959).

B 88. BAULCH, D. L., DRYSDALE, D. D., HORNE, D. G., AND LLOYD, A. C., EVALUATED KINETIC DATA FOR HIGH TEMPERATURE REACTIONS VOLUME 1, CRC PRESS (1972).

B 88. BAULCH, D. L., DRYSDALE, D. D., HORNE, D. G., AND LLOYD, A. C., EVALUATED KINETIC DATA FOR HIGH-TEMPERATURE REACTIONS VOLUME 1 - HOMOGENEOUS GAS PHASE REACTIONS OF THE H2-O2 SYSTEMS, BUTTERWORTHS (1972).

REFERENCES (CONT'D)

B 89. BENSON, S. W. AND O'NEAL, H. E., NSRDS-NBS 21 (1970).

B 90. BAULCH, D. L., DRYSDALE, D. D., HORNE, D. G., AND LLOYD, A. C., EVALUATED KINETIC DATA FOR HIGH-TEMPERATURE REACTIONS VOLUME 2 - HOMOGENEOUS GAS PHASE REACTIONS OF THE H2-N2-O2 SYSTEMS, BUTTERWORTHS (1973).

B 91. BROWN, R. L., INT. J. CHEM. KINETICS 5, 663 (1973).

B 92. BALDWIN, R. R., GETHIN, A., AND WALKER, R. W., J. CHEM. SOC. FARADAY TRANS. I 69, 352 (1973).

B 93. BAULCH, D. L., DRYSDALE, D. D., AND HORNE, D. G., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 107 (1973).

B 94. BRESHEARS, W. D. AND BIRD, P. F., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 211 (1973).

B 95. BALDWIN, R. R. AND WALKER, R.W., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 241 (1973).

B 96. BLACK, G., SHARPLESS, R. L., AND SLANGER, T. G., J. CHEM. PHYS. 58, 4792 (1973).

B 97. BENSON, S. W., GOLDEN, D. W., LAWRENCE, R. W., AND SHAW, R., QUARTERLY PROGRESS REPORT NO. 2, EPA GRANT NO. R-800798, FEBRUARY, 1973.

B 98. BAULCH, D. L. AND DRYSDALE, D. D., COMB. AND FLAME 23, 215 (1974).

REFERENCES (CONT'D)

C 1. CHERRY, S. S., GOLD, P. I., AND VAN NICE, L. J., PHASE 1 FINAL REPORT (TRW NO. 08832-6001-T0000, MAY 1967).

C 2. CLYNE, M. A. A., NINTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 211 (1963).

C 3. CLYNE, M. A. A., AND THRUSH, B. A., PROC. ROY. SOC. (LONDON) SERIES A 275, 544 (1963).

C 4. CLYNE, M. A. A., AND THRUSH, B. A., TRANS. FARADAY SOC. 57, 1305 (1961).

C 5. CLYNE, M. A. A., AND THRUSH, B. A., PROC. ROY. SOC. (LONDON) SERIES A 275, 559 (1963).

C 6. CLYNE, M. A. A., AND THRUSH, B. A., NATURE 189, 135 (1961).

C 7. CARY, B., PHYS. FLUIDS 8, 26 (1965).

C 8. CAMPBELL, I. M., AND THRUSH, B. A., TRANS. FARAD. SOC. 64 1265 (1968).

C 9. CLYNE, M. A. A., AND THRUSH, B. A., PROC. ROY. SOC. (LONDON) SERIES A 269, 404 (1962).

C 10. CLERC, M. AND BARAT, F., J. CHIM. PHYSIQUE, 63, 1525 (1966).

C 11. CLERC, M. AND BARAT, F., J. CHEM. PHYS. 46, 107 (1967).

C 12. CLYNE, M. A. A., AND THRUSH, B. A., PROC. ROY. SOC. (LONDON) SERIES A 261, 259 (1961).

C 13. CLYNE, M. A. A., AND THRUSH, B. A., NATURE, 189, 56 (1961).

C 14. CAMPBELL, I. M., AND THRUSH, B. A., TRANS. FARADAY SOC., 62, 3366 (1966).

C 15. CAMPBELL, I. M., AND THRUSH, B. A., PROC. ROY. SOC., A296, 222 (1967).

C 16. CAMPBELL, I. M., AND THRUSH, B. A., TRANS. FARADAY SOC. 64, 1275 (1968).

C 17. CARNICOM, M. L., SANDIA CORP., SC-R-66-885 (1966).

C 18. CARNICOM, M. L., SANDIA CORP., SC-R-68-1799 (1968).

C 19. CAMAC, M. AND FEINBERG, R. M., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 137 (1967).

REFERENCES (CONT'D)

C 20. CLYNE, M. A. A., AND THRUSH, B. A., DISC. FARADAY SOC. 33, 139 (1962).

C 21. CRIST, R., AND WERTZ, J., J. CHEM. PHYS. 7, 719 (1939).

C 22. CADLE, R. D., AND ALLEN, E. R., J. PHYS. CHEM. 69, 1611 (1965).

C 23. CLARK, T. C., GARNETT, S. H., AND KISTIAKOWSKY, G. B., J. CHEM. PHYS. 51, 2885 (1969).

C 24. CLARK, I. D. AND WAYNE, R. P., PROC. ROY. SOC. A316, 539 (1970).

C 25. CLOUGH, P. N. AND THRUSH, B. A., DISC. FARADAY SOC. 44, 205 (1967).

C 26. CLARK, T. C., DEAN, A. M., AND KISTIAKOWSKY, G. B., J. CHEM. PHYS. 54, 1726 (1971).

C 27. COOKE, D. F. AND WILLIAMS, A., THIRTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 757 (1971).

C 28. CAMAC, M. AND VAUGHAN, A., J. CHEM. PHYS. 34, 460 (1961).

C 29. CAMPBELL, I. M. AND THRUSH, B. A., CHEM. COMMUN. 1965, 250 (1965).

C 30. CARABETTA, R. AND KASKAN, W., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 321 (1967).

REFERENCES (CONT'D)

D 1. DIXON-LEWIS, G., SUTTON, M. M., AND WILLIAMS, A., J. CHEM. SOC. (LONDON), 5724 (1965).

D 2. DIXON-LEWIS, G., SUTTON, M. M., AND WILLIAMS, A., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION 495 (1965).

D 3. DIXON-LEWIS, G., PROC. ROY. SOC. A317, 235 (1970).

D 4. DELGRECO, F. P., AND KAUFMAN, F., DISCUSSIONS FARADAY SOC. 33, 128 (1962).

D 5. DIXON-LEWIS, G., WILSON, W. E., AND WESTENBERG, A. A., J. CHEM. PHYS. 44, 2877 (1966).

D 6. DIXON-LEWIS, G., AND WILLIAMS, A., NATURE 196, 1309 (1962).

D 7. DUFF, R. E., J. CHEM. PHYS. 28, 1193 (1958).

D 8. DIESEN, R. W., J. CHEM. PHYS. 39, 2121 (1963).

D 9. DAVIDSON, N., AVCO MANUFACTURING CORPORATION/AVCO RESEARCH LABORATORY RESEARCH REPORT 32, AD 205514 (JUNE 1958).

D 10. DIXON-LEWIS, G., AND WILLIAMS, A., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 951 (1966).

D 11. DIXON-LEWIS, G., SUTTON, M. M., AND WILLIAMS, A., TRANS. FARADAY SOC. 61, 255 (1965).

D 12. DIXON-LEWIS, G., AND WILLIAMS, A., NINTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 576 (1963).

D 13. DIXON-LEWIS, G., SUTTON, M. M., AND WILLIAMS, A., DISCUSSIONS FARADAY SOC. 33, 205 (1962).

D 14. DAVIES, W. D., J. CHEM. PHYS. 41, 1846 (1964).

D 15. DAVIES, W. D., J. CHEM. PHYS. 43, 2809 (1965).

D 16. DUFF, R. E., AND DAVIDSON, N., J. CHEM. PHYS. 31, 1018 (1959).

D 17. DIXON-LEWIS, G., SUTTON, M. M., AND WILLIAMS, A., PROC. ROY. SOC. A317, 227 (1970).

D 18. DODONOV, A. F., LAVROVSKAYA, G. K., AND TALROZE, V. L., KINETICS AND CATALYSIS 10, 391 (1969).

D 19. DODONOV, A. F., LAVROVSKAYA, G. K., AND TALROZE, V. L., KINETICS AND CATALYSIS 10, 573 (1969).

REFERENCES (CONT'D)

D 20. DEAN, A. M. AND KISTIAKOWSKY, G. B., J. CHEM. PHYS. 53, 830 (1970).

D 21. DONOVAN, R. J., HUSAIN, D., AND KIRSCH, L. J., TRANS. FARADAY SOC. 66, 2551 (1970).

D 22. DEAN, A. M. AND KISTIAKOWSKY, G. B., J. CHEM. PHYS. 54, 1718 (1971).

D 23. DRYER, F., NAEGELI, D., AND GLASSMAN, I., COMBUSTION AND FLAME 17, 270 (1971).

D 24. DRYER, F. L. AND GLASSMAN, I., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, PAPER NO. (1972).

D 25. DRYSDALE, D. D. AND LLOYD, A. C., OXIDATION AND COMBUSTION REVIEWS 4, 157 (1970).

D 26. DICKENS, P. G., GOULD, R. D., LINNETT, J. W., AND RICHMOND, A., NATURE 187, 686 (1960).

D 27. DAVIS, D. D., HUIE, R. E., HERRON, J. T., KURYLO, M. J., AND BRAUN, W., J. CHEM. PHYS. 56, 4868 (1972).

D 28. DAVIS, D. D., HERRON, J. T., AND HUIE, R. E., J. CHEM. PHYS. 58, 530 (1973).

D 29. DAY, M. J., THOMPSON, K., AND DIXON-LEWIS G., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 47 (1973).

REFERENCES (CONT'D)

E 1. ESCHENROEDER, A. Q., AND LORDI, J. A., NINTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 241 (1963).

E 2. ESCHENROEDER, A. Q., BOYER, D. W., AND HALL, J. G., CORNELL AERONAUTICAL LABORATORY, INC. REPORT AF-1413-A-1, AD 257396 (MAY 1961).

E 3. ESCHENROEDER, A. Q., BOYER, D. W., AND HALL, J. G., PHYS. FLUIDS 5, 615 (1962).

E 4. EDER, T. W., DISS. ABSTR. INT. B 30, 4581-B (1970).

E 5. EBERIUS, K. H., HOYERMAN, K., AND WAGNER, H. GG., THIRTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 713 (1971).

E 6. EVENSON, K. M. AND BURCH, D. S., J. CHEM. PHYS. 45, 2450 (1966).

E 7. EBERIUS, K. H., HOYERMANN, K., AND WAGNER, H. G., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 147 (1973).

REFERENCES (CONT'D)

F 1. FENIMORE, C. P., AND JONES, G. W., J. PHYS. CHEM. 65, 2200 (1961).

F 2. FENIMORE, C. P., AND JONES, G. W., J. PHYS. CHEM. 63, 1154 (1959).

F 3. FUJIMOTO, S., BULL. CHEM. SOC. JAPAN 36, 1223 (1963).

F 4. FENIMORE, C. P., AND JONES, G. W., J. PHYS. CHEM. 62, 693 (1958).

F 5. FRISTROM, R. M., NINTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 560 (1963).

F 6. FENIMORE, C. P., CHEMISTRY IN PREMIXED FLAMES, PERGAMON PRESS (1964).

F 7. FRISTROM, R. M., AND WESTENBERG, A. A., FLAME STRUCTURE, MCGRAW-HILL BOOK COMPANY (1965).

F 8. FENIMORE, C. P., AND JONES, G. W., J. PHYS. CHEM. 65, 1532 (1961).

F 9. FENIMORE, C. P., AND JONES, G. W., J. PHYS. CHEM. 65, 993 (1963).

F 10. FREEDMAN, E., AND DAIBER, J. W., J. CHEM. PHYS. 34, 1271 (1961).

F 11. FENIMORE, C. P., AND JONES, G. W., EIGHTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 127 (1962).

F 12. FENIMORE, C. P., AND JONES, G. W., J. PHYS. CHEM. 62, 178 (1958).

F 13. FENIMORE, C. P., AND JONES, G. W., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 489 (1965).

F 14. FROST, A. A., AND OLDENBERG, O., J. CHEM. PHYS. 4, 642 (1936).

F 15. FELMLEE, W. J., PETRELLA, R. V., AND DIESEN, R. W., OFFICE OF NAVAL RESEARCH, TECHNICAL REPORT SL 175311A, AD 482 393 (1966).

F 16. FISHBURNE, E. S., BERGBAUER, D. M., AND EDSE, R. J., J. CHEM PHYS. 43, 1847 (1965).

F 17. FISHBURNE, E. S., BERGBAUER, D. M. AND EDSE, R. J., AEROSPACE RESEARCH LABS., ARL 65-169, AD 622 692 (1965).

REFERENCES (CONT'D)

F 18. FISHBURNE, E. S., AND EDSE, R., J. CHEM. PHYS. 44, 515 (1966).

F 19. FORD, H. W., AND ENDOW, N., J. CHEM. PHYS. 27, 1156 (1957).

F 20. FORD, H. W., AND JAFFE, S., J. CHEM. PHYS., 38, 2935 (1936).

F 21. FENIMORE, C. P., AND JONES, G. W., J. PHYS. CHEM. 62, 1578 (1958).

F 22. FENIMORE, C. P., AND JONES, G. W., J. CHEM. PHYS. 39, 1514 (1963).

F 23. FISHBURNE, E. S., BILWAKESH, K. R., AND EDSE, R., J. CHEM. PHYS. 45, 160 (1966).

F 24. FAIRBAIRN, A. R., PROC. ROY. SOC. A312, 207 (1969).

F 25. FENIMORE, C. P., AND JONES, G. W., J. PHYS. CHEM. 61, 654 (1957).

F 26. FARKAS, L., AND SACHSSE, H., ZEIT. FUR. PHYS. CHEM. B23, 1 (1933).

F 27. FREEDMAN, E., AND DAIBER, J. W., J. CHEM. PHYS. 34, 1271 (1961).

F 28. FISHBURNE, E., AND EDSE, R., J. CHEM. PHYS. 41, 1297 (1964).

F 29. FRANKLIN, J. L., ANN. REVIEW PHYS. CHEM. 18, 261 (1967).

F 30. FALCONER, J. W., HOARE, D. E., AND OVEREND, R., COMBUSTION AND FLAME 21, 339 (1973).

REFERENCES (CONT'D)

G 1. GARNETT, S. H., KISTIAKOWSKY, G. B., AND OGRADY, B. V., J. CHEM. PHYS. 51, 84 (1969).

G 2. GLASS, G. P., KISTIAKOWSKY, G. B., MICHAEL, J. V., AND NIKI, H., J. CHEM. PHYS. 42, 608 (1965).

G 3. GUTMAN, D., AND SCHOTT, G. L., J. CHEM. PHYS. 46, 4576 (1967).

G 4. GUTMAN, D., HARDWIDGE, E. A., DOUGHERTY, F. A., AND LUTZ, R. W., J. CHEM. PHYS. 47, 4400 (1967).

G 5. GETZINGER, R. W., AND SCHOTT, G. L., J. CHEM. PHYS. 43, 3237 (1965).

G 6. GETZINGER, R. W. AND BLAIR, L. S., COMBUSTION AND FLAME 13, 271 (1969).

G 7. GREINER, N. R., J. CHEM. PHYS. 46, 2795 (1967).

G 8. GARVIN, G., GWYN, P. P., AND MOSKOWITZ, J. W., CAN. J. CHEM. 38, 1795 (1960).

G 9. GETZINGER, R. W., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 117 (1967).

G 10. GREINER, N. R., J. CHEM. PHYS. 51, 5049 (1969).

G 11. GARDINER, W. C., AND KISTIAKOWSKI, G. B., J. CHEM. PHYS. 35, 1765 (1961).

G 12. GLICK, H. S., KLEIN, J. J., AND SQUIRE W., J. CHEM. PHYS. 27, 850 (1957).

G 13. GREENBERG, R. I. AND HEICKLEN, J., INT. J. CHEM. KINETICS 2, 185 (1970).

G 14. GUTMAN, D., LUTZ, R. W., JACOBS, N. F., HARDWIDGE, E. A., AND SCHOTT, G. L., J. CHEM. PHYS. 48, 5689 (1968).

G 15. GARVIN, D. AND GEVANTMAN, L. H., NBS REPORT 10-867 (1972).

G 16. GREINER, N. R., J. CHEM. PHYS. 48, 1413 (1968).

G 17. GAY, I. D., GLASS, G. P., KISTIAKOWSKY, G. B., AND NIKI, H., J. CHEM. PHYS. 43, 4017 (1965).

G 18. GREINER, N. R., J. CHEM. PHYS. 53, 1070 (1970).

G 19. GOLDEN, J. A. AND MYERSON, A. L., J. CHEM. PHYS. 28, 978 (1958).

REFERENCES (CONT'D)

G 20. GARVIN, D. AND HAMPSON, R. F., EDITORS, NBS REPORT NBSIR 74-430 (1974).

G 21. GARVIN, D., EDITOR, NBS REPORT NBSIR 73-206 (1973).

G 22. GARDINER, W. C. JR., MALLARD, W. G., MC FARLAND, M, MORINAGA, K., OWEN, J. H., RAWLINS, W. T., TAKEYAMA, T., AND WALKER, B. F., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 61 (1973).

G 23. GEHRING, M., HOYERMANN, K., SCHACKE, H., AND WOLFRUM, J., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 99 (1973).

G 24. GAEDTKE, H., GLANZER, K., HIPPLER, H., LUTHER, K., AND TROE, J., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION 295 (1973).

G 25. GARDINER, W. C. JR., MCFARLAND, M., MORINAGA, K., TAKEYAMA, T., AND WALKER, B. F., J. PHYS. CHEM. 75, 1504 (1971).

REFERENCES (CONT'D)

H 1. HIRSCH, E., AND RYASON, P. R., J. CHEM. PHYS. 40, 2050 (1964).

H 2. HEICKLEN, J., AIAA J. 5, 4 (1967).

H 3. HARTECK, P., AND DONDES, S., J. PHYS. CHEM. 63, 956 (1959).

H 4. HUFFMAN, R. E., AND DAVIDSON, N., J. AM. CHEM. SOC. 81, 2311 (1959).

H 5. HOYERMANN, K., WAGNER, H., AND WOLFRUM, J., BER. BUNSENGES PHYSIC. CHEM. 71, 599 (1967).

H 6. HOARE, D. E., AND WALSH, A. D., CHEM. SOC. SPECIAL PUBLICATION 9, 17 (1957).

H 7. HERRON, J. T., J. CHEM. PHYS. 45, 1854 (1966).

H 8. HIRAOKA, H., AND HARDWICK, R., J. CHEM. PHYS. 39, 2361 (1963).

H 9. HARTECK, P., REEVES, R. R., AND MANELLA, G., J. CHEM. PHYS. 29, 1333 (1958).

H 10. HARTLEY, D. B., AND THRUSH, B. A., PROC. ROY. SOC. A297, 520 (1967).

H 11. HEATH, G. A., AND PEARSON, G. S., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 967 (1967).

H 12. HOTTEL, H. C., WILLIAMS, G. C., NERHEIM, N. H., AND SCHNEIDER, G. R., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 111 (1965).

H 13. HEICKLEN, J., AND COHEN, N., ADV. IN PHOTOCHEM. 5, 157 (1968).

H 14. HALSTEAD, C. J., AND JENKINS, D. R., TWELFTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 97 (1969).

H 15. HARTECK, P., AND DONDES, S., J. CHEM. PHYS. 23, 902 (1955).

H 16. HARTECK, P., AND DONDES, S., J. CHEM. PHYS. 27, 546 (1957).

H 17. HERRON, J. T., J. CHEM. PHYS. 35, 1138 (1961).

H 18. HERRON, J. T., J. RES. N.B.S., A65, 411 (1961).

H 19. HENRICI, H., AND BAUER, S. H., J. CHEM. PHYS. 50, 1333 (1969).

REFERENCES (CONT'D)

H 20. HOARE, D. E. AND PATEL, M., TRANS. FARADAY SOC. 65, 1325 (1969).

H 21. HURLE, I. R., JONES, A., AND ROSENFELD, J. L. J., PROC. ROY. SOC. A310, 253 (1969).

H 22. HARTMANN, H., JOST, W., AND WAGNER, H. GG., BER. BUNSENGES. PHYS. CHEM. 72, 905 (1968).

H 23. HURLE, I. R., MACKEY, P., AND ROSENFELD, J. L. J., BER. BUNSENGES. PHYS. CHEM. 72, 991 (1968).

H 24. HOMER, J. B. AND HURLE, I. R., PROC. ROY. SOC. A314, 585 (1969).

H 25. HERRON, J. T., INT. J. CHEM. KINETICS 1, 527 (1969).

H 26. HALSTEAD, C. J. AND JENKINS, D. R., COMBUSTION AND FLAME 14, 321 (1970).

H 27. HURLE, I. R., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 827 (1967).

H 28. HOWSON, A. C. AND SIMMONS, R. F., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 1081 (1967).

H 29. HAMILTON, C. W. AND SCHOTT, G. L., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 635 (1967).

H 30. HERRON, J. T. AND HUIE, R. E., J. PHYS. CHEM. 72, 2235 (1968).

H 31. HAMPSON, R. F., EDITOR, NBS REPORT 10-692 (1972).

H 32. HARTIG, R., TROE, J., AND WAGNER, H. GG., THIRTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 147 (1971).

H 33. HERRON, J. T. AND PENZHORN, R. D., J. PHYS. CHEM. 73, 191, (1969).

H 34. HAM, D. O., TRAINOR, D. W., AND KAUFMAN, F., J. CHEM. PHYS. 53, 4395 (1970).

H 35. HERRON, J. T., FRANKLIN, J. L., BRADT, P., AND DIBELER, V. H., J. CHEM. PHYS. 30, 879 (1959).

H 36. HARTECK, P., REEVES, R. R., AND MANELLA, G., J. CHEM. PHYS. 29, 608 (1958).

H 37. HOCHANADEL, C. J., GHORMLEY, J. A., AND OGREN, P. J., J. CHEM. PHYS. 56, 4426 (1972).

REFERENCES (CONT'D)

H 38. HAMPSON, R. F. [illegible]TOR, NBS REPORT NBSIR 73-207 (1973).

H 39. HALSTEAD, C. [illegible] JENKINS, D. R., CHEM. PHYS. LETTERS 2, 281 (19[illegible].

REFERENCES (CONT'D)

I 1. INTEZAROVA, E. I., KONDRATIEV, V. N., AND MUKHOYAN, M. Z., KINETICS AND CATALYSIS 5, 517 (1964).

I 2. INTEZAROVA, E. I. AND KONDRATIEV, V. N., KINETICS AND CATALYSIS 9, 395 (1968).

I 3. IVERACH, D., BASDEN, K. S., AND KIROV, N. Y., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 767 (1973).

REFERENCES (CONT'D)

J 1. JENSEN, D. E., AND KURZIUS, S. C., AEROCHEM RESEARCH LABORATORIES, INC., REPORT TP-149 MARCH (1967).

J 2. JAMIESON, J. W. S., AND BROWN, G. R., CAN. J. CHEM. 42, 1638 (1964).

J 3. JENKINS, D. R., YUMLU, V. S., AND SPALDING, D. B., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 779 (1967).

J 4. JOHNSTON, H. S., NSRDS-NBS 20 (1968).

J 5. JOST, W., SCHECKER, H. GG., AND WAGNER, H. GG., Z. PHYS. CHEM. NEUE FOLGE (FRANKFURT) 45, 47 (1965).

J 6. JOHNSTON H., BONNER W., AND WILSON, D., J. CHEM. PHYS. 26, 1002 (1957).

J 7. JOHNSTON H., J. CHEM. PHYS. 19, 663 (1951).

J 8. JACHIMOWSKI, C. J. AND HOUGHTON, W. M., COMBUSTION AND FLAME 17, 25 (1971).

J 9. JUST, T. AND STEPANEK, S., PROC. SEVENTH INTERNATIONAL SHOCK TUBE SYMPOSIUM, 626 (1970).

J 10. JACHIMOWSKI, C. J. AND HOUGHTON, W. M., COMBUSTION AND FLAME 15, 125 (1970).

J 11. JACOBS, T. A., GIEDT, R. R., AND COHEN, N., J. CHEM. PHYS. 47, 54 (1967).

J 12. JONES,W. E., MACKNIGHT, S. D., AND TENG, L., CHEM. REVIEWS 73, 407 (1973).

REFERENCES (CONT'D)

K 1. KLEIN, R., SCHEER, M. D., AND SCHOEN, L. J., J. AM. CHEM. SOC. 78, 50 (1956).

K 2. KLEIN, R., MCNESBY, J. R., SCHEER, M. D., AND SCHOEN, L. J., J. CHEM. PHYS. 30, 58 (1959).

K 3. KASKAN, W. E., AND BROWNE, W. G., GENERAL ELECTRIC MISSILE AND SPACE DIVISION REPORT NO. R64SD37, FEBRUARY (1964).

K 4. KAUFMAN, F., AND DEL GRECO, F. P., NINTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 659 (1963).

K 5. KONDRATIEV, V. N., SEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 41 (1959).

K 6. KARMILOVA, L. V., NALBANDYAN, A. B., AND SEMENOV, N. N., ZH. FIZ. KHIM. 32, 1193 (1958).

K 7. KURZIUS, S. C., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 385 (1965).

K 8. KURZIUS, S. C., AND BOUDART, M., COMBUSTION AND FLAME 12, 477 (1968).

K 9. KAUFMAN, F., ANNALES DE GEOPHYSIQUE 20, 106 (1964).

K 10. KURZIUS, S. C., KINETICS OF THE BRANCHING STEP IN THE REACTION OF HYDROGEN WITH OXYGEN, PH. D. DISSERTATION, PRINCETON UNIVERSITY (1964).

K 11. KAUFMAN, F., AND KELSO, J. R., J. CHEM. PHYS. 23, 1702 (1955).

K 12. KAUFMAN, F., AND KELSO, J., SEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 53 (1959).

K 13. KISTIAKOWSKY, G. B., AND VOLPI, G. G., J. CHEM. PHYS. 27, 1141 (1957).

K 14. KLEIN, F. S., AND HERRON, J. T., J. CHEM. PHYS. 41, 1285 (1964).

K 15. KLEIN, F. S., AND HERRON, J. T., J. CHEM. PHYS. 44, 3645 (1966).

K 16. KAUFMAN, F., PROC. ROY. SOC., SERIES A 247, 123 (1958).

K 17. KASKAN, W. E., COMBUSTION AND FLAME 2, 286 (1958).

K 18. KAUFMAN, F., AND DEL GRECO, F. P., J. CHEM. PHYS. 35, 1895 (1961).

REFERENCES (CONT'D)

K 19. KAUFMAN, F., GERRI, N. J., AND BOWMAN, R. E., J. CHEM. PHYS. 25, 106 (1956).

K 20. KAUFMAN, F., J. CHEM. PHYS. 28, 352 (1958).

K 21. KAUFMAN, F., AND KELSO, J. R., SYMPOSIUM ON CHEMILUMINESCENCE, 65 (1965).

K 22. KONDRATIEV, V. N., CHEMICAL KINETICS OF GAS REACTIONS, PERGAMON PRESS (1964).

K 23. KONDRATIEV, V. N., AND PTICHKIN, I. I., KINETICS AND CATALYSIS 2, 449 (1961).

K 24. KISTIAKOWSKY, G. B., AND VOLPI, G. G., J. CHEM. PHYS. 28, 665 (1958).

K 25. KRETSCHMER, C. B., AND PETERSEN, H. L., J. CHEM. PHYS. 39, 1772 (1963).

K 26. KAUFMAN, F., AND DECKER, L. J., SEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 57 (1959).

K 27. KAPLAN, J. AND BARTH, C. A., PROC. NAT. ACAD. SCI., 44, 105 (1958).

K 28. KAUFMAN, F. AND KELSO, J. R., J. CHEM. PHYSICS, 21, 751 (1953).

K 29. KAUFMAN, F., PROGRESS IN REACTION KINETICS, G. PORTER, ED., PERGAMON PRESS, VOL. 1, PAGE 1 (1961).

K 30. KAUFMAN, F., AND KELSO, J. R., J. CHEM. PHYS 23, 602 (1955).

K 31. KAUFMAN, F., AND KELSO, J. R., J. CHEM. PHYS. 23, 1702 (1955).

K 32. KARMILOVA, A. V., NALBANDYAN, A. L., AND SEMENOFF, N. N., ZH. FIZ. KHIM. 32, 1193 (1958).

K 33. KONDRATIEV, V. N. AND INTEZAROVA, E. I., INT. J. CHEM. KINETICS 1, 105 (1969).

K 34. KURYLO, M. J., HOLLINDEN, G. A., AND TIMMONS, R. B., J. CHEM. PHYS. 52, 1773 (1970).

K 35. KOCHUBEI, V. F. AND MOIN, F. B., KINETICS AND CATALYSIS 10, 992 (1969).

K 36. KAUFMAN, F., ANN. REVIEW PHYS. CHEM. 20, 45 (1969).

REFERENCES (CONT'D)

K 37. KERR, J. A., ANN. REP. PROG. CHEM. 64, 73 (1968).

K 38. KONDRATIEV, V. N., COMBUSTION, EXPLOSION, AND SHOCK WAVES 4, 253 (1968).

K 39. KONDRATIEV, V. N., KINETICS AND CATALYSIS 8, 831 (1967).

K 40. KHAN, M. S. AND CRYNES, B. L., IND. ENG. CHEM. 62, 54 (1970).

K 41. KAUFMAN, F., CAN, J. CHEM. 47, 1917 (1969).

K 42. KURYLO, M. J. AND TIMMONS, R. B., J. CHEM. PHYS. 50, 5076 (1969).

K 43. KRETSCHMER, C. B. AND PETERSEN, H. L., J. CHEM. PHYS. 33, 948 (1960).

K 44. KIEFER, J. H., AND LUTZ, R. W., J. CHEM. PHYS. 42, 1709 (1965).

K 45. KONDRATIEV, V. N., RATE CONSTANTS OF GAS PHASE REACTIONS-REFERENCE BOOK, ENGLISH TRANSLATION, R. M. FRISTROM, EDITOR, NTIS, COM-72-10014, PRINTED 1972 (1970).

K 46. KURYLO, M. J., J. PHYS. CHEM. 76, 3518 (1972).

K 47. KONDRATIEV, V. N. AND AZATYAN, V. V., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 37 (1973).

REFERENCES (CONT'D)

L 1. LEROY, D. J., FARADAY SOC. 14, 120 (1953).

L 2. LOVACHEV, L. A., COMB. AND FLAME 7, 388 (1963).

L 3. LUDWIG, C. B., AND SULZMANN, K. G. P., CONVAIR DIVISION/ GENERAL DYNAMICS CORPORATION REPORT ZPH-082, AD 257 971, (FEBRUARY 1961).

L 4. LEVITT, B. P., TRANS. FARADAY SOC. 59, 59 (1963).

L 5. LARKIN, F. S., AND THRUSH, B. A., DISCUSSIONS FARADAY SOC. 37, 112 (1964).

L 6. LIN, S. C. AND TEARE, J. D., PHYS. FLUIDS 6, 355 (1963).

L 7. LANGAN, W. T., CRESSWELL, J. D., AND BROWNE, W. G., AIAA J. 3, 2211 (1965).

L 8. LANGAN, W. T., CRESSWELL, J. D., AND BROWNE, W. G., AIAA PREPRINT 65-54 (1965).

L 9. LIN, M. C. AND BAUER S. H., J. CHEM. PHYS. 50, 3377 (1969).

L 10. LANGE, H. B., PAPER NO. 28B, 64TH ANNUAL MEETING AICHE (NOVEMBER 1971).

L 11. LLOYD, A. C., NBS REPORT 10 447 (1971).

L 12. LIVESLY, J. B., ROBERTS, A. L., AND WILLIAMS, A., COMBUSTION SCI. TECH. 4, 9 (1971).

L 13. LARKIN, F. S. AND THRUSH, B. A., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 397 (1965).

L 14. LIPKEA,W.H., MILKS, D., AND MATULA, R. A., COMBUSTION SCI. TECH. 6, 257 (1973).

L 15. LISSI, E. A., MASSIFF, G., VILLA, A. E., J. CHEM. SOC. FARADAY I 69, 346 (1973).

L 16. LLOYD, A. C., INT. J. CHEM. KINETICS 6, 169 (1974).

L 17. LAZZARA, C. P., BIORDI, J. C., AND PAPP, J. F., COMBUSTION AND FLAME 21, 371 (1973).

L 18. LAUFER, A. H. AND BASS, A. M., J. PHYS. CHEM. 78, 1344 (1974).

REFERENCES (CONT'D)

M 1. MCNESBY, J. R., SCHEER, M., AND KLEIN, R., J. CHEM. PHYS. 32 1814 (1960).

M 2. MAJURY, T. G., AND STEACIE, E. W. R., DISCUSSIONS FARADAY SOC. 14, 45 (1953).

M 3. MIYAMA, H., AND TAKEYAMA, T., J. CHEM. PHYS. 41, 2287 (1964).

M 4. MYERSON, A. L., AND WATT, W. S., J. CHEM. PHYS. 49, 425 (1968).

M 5. MAYER, S. W., AND SCHIELER, L., J. PHYS. CHEM. 72, 236 (1968).

M 6. MARRONE, P. V., ANTI-MISSILE RESEARCH ADVISORY COUNCIL PROCEEDINGS, VOLUME 4, (1961).

M 7. MATTHEWS, D. L., PHYS. FLUIDS 2, 170 (1959).

M 8. MAYER, S. W., SCHIELER, L., AND JOHNSTON, H. S., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 837 (1967).

M 9. MAYER, S. W., AND SCHIELER, L., J. PHYS. CHEM. 72, 2628 (1968).

M 10. MODICA, A. P., J. PHYS. CHEM. 69, 2111 (1965)

M 11. MYERS, B. F., SULZMANN, K. G. P., AND BARTLE, E. R., J. CHEM. PHYSICS 43, 1220 (1965).

M 12. MAHAN, B. H., AND SOLO, R. B., J. CHEM. PHYS. 37, 2669 (1962).

M 13. MULCAHY, M. F. R., AND WILLIAMS, D. J., TRANS FARADAY SOC. 64, 59 (1968).

M 14. MCANDREW, R., AND WHEELER, R., J. PHYS. CHEM. 66, 229 (1962).

M 15. MYERS, B. F., SULZMANN, K. G. P., AND BARTLE, E. R., J. CHEM. PHYS. 43, 1220 (1965).

M 16. MAVROYANNIS, C. AND WINKLER, C. A., CHEMICAL REACTIONS IN THE LOWER AND UPPER ATMOSPHERE, 287, INTERSCIENCE (1961).

M 17. MAHAN, B. H., ANN. REVIEW PHYS. CHEM. 17, 173 (1966).

M 18. MAVROYANNIS, C., AND WINKLER, C. A., CAN. J. CHEM. 39, 1601 (1961).

REFERENCES (CONT'D)

M 19. MCKENZIE, R. L., NASA TN D-3287 (1966).

M 20. MARTENEY, P. J., COMBUSTION SCI. TECH. 1, 461 (1970).

M 21. MELVIN, A., MOSS, J. B., AND CLARKE, J. F., COMBUSTION SCI. TECH. 4, 17 (1971).

M 22. MORGAN, J. E. AND SCHIFF, H. I., J. CHEM. PHYS. 38, 1495 (1963).

M 23. MARSHALL, T. C., PHYS. FLUIDS 5, 743 (1962).

M 24. MYERSON, A. L., THOMPSON, H. M., AND JOSEPH, P. J., J. CHEM. PHYS. 42, 3331 (1965).

M 25. MORRIS, E. D. AND NIKI, H., INT J. CHEM. KINETICS 5, 47 (1973).

M 26. MYERSON, A. L., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 219 (1973).

M 27. MACK, G. P. R. AND THRUSH, B. A., J. CHEM. SOC.-FARADAY TRANS. I 69, 208 (1973).

M 28. MAYER, S. W. AND SCHIELER, L., AEROSPACE CORP. REPORT NO. TDR-669(9210-02)-1, AD 478 491 (1966).

M 29. MILKS, D. AND MATULA, R. A., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 83 (1973).

M 30. MORRIS, E. D. JR. AND NIKI, H., J. PHYS. CHEM. 75, 3641 (1971).

REFERENCES (CONT'D)

N 1. NIKI, H., DABY, E. E., AND WEINSTOCK, B., J. CHEM. PHYS. 48, 5729 (1968).

N 2. NAWROCKI, P. J., AND PAPA, R., ATMOSPHERIC PROCESSES, PRENTICE-HALL (1963).

N 3. NICOLET, M., DISC. FARADAY SOC. 37, 7 (1964).

N 4. NIKI, H., DABY, E. E., AND WEINSTOCK, B., TWELFTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 277 (1969).

N 5. NEWHALL, H. K., TWELFTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 603 (1969).

N 6. NICOLET, M., AIR FORCE CAMBRIDGE RESEARCH LABS., AFCRL-64-939, AD 609 943 (1964).

N 7. NIKI, H., J. CHEM. PHYS. 45, 2330 (1966).

REFERENCES (CONT'D)

1. OLSCHEWSKI, H. A., TROE, J., AND WAGNER, H. GG., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 155 (1967).

2. OLDENBERG, O., AND RIEKE, F. F., J. CHEM. PHYS. 7, 485 (1959).

3. OGRYZLO, E. A., AND SCHIFF, H. I., CAN. J. CHEM. 37, 1690 (1959).

4. OLDERSHAW, G. A. AND PORTER, D. A., NATURE 223, 490 (1969).

5. OLSCHEWSKI, H. A., TROE, J., AND WAGNER, H. GG., BER. BUNSENGES. PHYSIK. CHEM. 70, 450 (1966).

REFERENCES (CONT'D)

P 1. PRITCHARD, H. O., PYKE, J. B., AND TROTMAN-DICKENSON, A. F., J. AM. CHEM. SOC. 77, 2629 (1955).

P 2. PHILLIPS, L. F., AND SCHIFF, H. I., J. CHEM. PHYS. 37, 1233 (1962).

P 3. PARSAMYAN, E. A., ARAKELYAN, V. V., AND NALBANDYAN, A. B., BULL. ACAD. SCI. USSR, DIV. CHEM. SCI. 1968, 486 (1968).

P 4. PARSAMYAN, N. I., AND NALBANDYAN, A. B., BULL. ACAD. SCI. USSR, DIV. CHEM. SCI. 1968, 724 (1968).

P 5. PHILLIPS, L. F., AND SCHIFF, H. I., J. CHEM. PHYS. 36, 1509 (1962).

P 6. PORTER, R. P., CLARK, A. H., KASKAN, W. E., AND BROWNE, W. E., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 907 (1966).

P 7. PALMER, H. B. AND HIRT, T. J., J. PHYS. CHEM. 67, 709 (1963).

P 8. PADLEY, P. J., AND SUGDEN, T. M., PROC. ROY. SOC. SERIES A 248, 248 (1958).

P 9. PERGAMENT, H. S., AND CALCOTE, H. F., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 597 (1967).

P 10. PHILLIPS, L. F., AND SCHIFF, H. I., J. CHEM. PHYS. 42, 3171 (1965).

P 11. PATCH, R. W., J. CHEM. PHYS. 36, 1919 (1962).

P 12. PHILLIPS, L. F. AND SUGDEN, T. M., TRANS. FARADAY SOC. 57, 2188 (1961).

P 13. PEETERS, J. AND MAHNEN, G., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 133 (1973).

REFERENCES (CONT'D)

R 1. ROSSER, W. A., JR., AND WISE, H., J. PHYS. CHEM. 65, 532 (1961).

R 2. RIPLEY, D. L., AND GARDINER, W. C., JR., J. CHEM. PHYS. 44, 2285 (1966).

R 3. ROSENFELD, J. L. J., AND SUGDEN, T. M., COMBUSTION AND FLAME, 8, 44 (1964).

R 4. REUBEN, B. G., AND LINNETT, J. W., TRANS. FARADAY SOC. 55, 1543 (1959).

R 5. REINHARDT, K., WAGNER, H. GG., AND WOLFRUM, J., BER. BUNSENGES. PHYS. CHEM. 73, 638 (1969).

R 6. RIDLEY, B. A., DAVENPORT, J. A., STIEF, L. J., AND WELGE, K. H., J. CHEM. PHYS. 57, 520 (1972).

R 7. RINK, J. P., J. CHEM. PHYS. 36, 262 (1962).

R 8. RINK, J. P., J. CHEM. PHYS. 36, 572 (1962).

R 9. REEVES, R. R., MANELLA, G., AND HARTECK, P., J. CHEM. PHYS. 32, 632 (1960).

R 10. RINK, J. P., KNIGHT, H. T., AND DUFF, R. E., J. CHEM. PHYS. 34, 1942 (1961).

R 11. RINK, J. P., J. CHEM. PHYS. 36, 1398 (1962).

R 12. RAWLINS, W. T. AND GARDINER, W. C. JR., J. CHEM. PHYS. 60, 4676 (1974).

R 13. RAWLINS, W. T. AND GARDINER, W. C. JR., J. PHYS. CHEM. 78, 497 (1974).

REFERENCES (CONT'D)

S 1. SCHOFIELD, K., PLANETARY SPACE SCI. 15, 643 (1967).

S 2. SKINNER, G. B., AND RINGROSE, G. H., J. CHEM. PHYS. 43, 4129 (1965).

S 3. STEACIE, E. W. R., CAN. J. RES. 15B, 264 (1937).

S 4. SKINNER, G. B., AND RINGROSE, G. H., J. CHEM. PHYS. 42, 2190 (1965).

S 5. SCHIFF, H. I., DISC. FARADAY SOC. 33, 285 (1962).

S 6. SOLOUKHIN, R. I., DOKLADY PHYS. CHEM. 194, 678 (1970).

S 7. SLANGER, T. G. AND BLACK, G., J. CHEM. PHYS. 53,3722 (1970).

S 8. SCHOTT, G. L., AND KINSEY, J. L., J. CHEM. PHYS. 29, 1177 (1958).

S 9. SEERY, D. J. AND BOWMAN, C. T., COMBUSTION AND FLAME 14, 37 (1970).

S 10. SULZMANN, K. G. P., MYERS, B. F., AND BARTLE, E. R., J. CHEM PHYS. 42, 3969 (1965).

S 11. SIMONAITIS, R., J. PHYS. CHEM. 67, 2227 (1963).

S 12. SKINNER, G. B., MILLER, D. R., KATON, J. E., HEDLEY, W. H., RINGROSE, G. H., AND SNYDER, A. D., AERONAUTICAL SYSTEMS DIVISION, U. S., SYSTEMS COMMAND, WRIGHT-PATTERSON A.F.B., OHIO, REPORT ASD-TDR-62-1042 AD 294625 DECEMBER (1962).

S 13. SEERY, D. J. AND BOWMAN, C. T., ACS DIV. FUEL CHEM. PREPRINTS 11 (4), 82 (1967).

S 14. SCHOTT, G. L., J. CHEM. PHYS. 32, 710 (1960).

S 15. SERAUSKAS, R. V. AND KELLER, R. A., ACS DIV. FUEL CHEM. PREPRINTS 13 (1), 152 (1969).

S 16. SPADACCINI, L. J. AND CHINITZ, W., PAPER NO 71-WA/FU-2, WINTER ANNUAL MEETING ASME (NOVEMBER 1971).

S 17. SMITH, I. W. M., TRANS. FARADAY SOC. 64, 378 (1968).

S 18. STEPUKHOVICH, A. D. AND UMANSKY, V. M., ZHUR. FIZ. KHIM. 40, 2551 (1966).

S 19. SCHOTT, G. L., AND BIRD, P. J., J. CHEM. PHYS. 41, 2869 (1964).

REFERENCES (CONT'D)

S 20. SLANGER, T. G. AND BLACK, G., J. CHEM. PHYS. 53,3717 (1970).

S 21. SPURK, J. H., GERBER, N., AND SEDNEY, R., AIAA J. 4, 30 (1966).

S 22. SOLOUKHIN, R. I., THIRTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 121 (1971).

S 23. SCHOTT, G. L., TWELFTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 569 (1969).

S 24. SLANGER, T. G., WOOD, B. J., AND BLACK, G., J. CHEM. PHYS. 57, 233 (1972).

S 25. SCHIFF, H. I., CAN. J. CHEM. 47,1903 (1969).

S 26. SINGH, T. AND SAWYER, R. F., THIRTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 403 (1971).

S 27. SKINNER, G. B. AND RUEHRWEIN, R. A., J. PHYS. CHEM. 63, 1736 (1959).

S 28. SUTTON, E. A., J. CHEM. PHYS. 36, 2972 (1962).

S 29. SHAHED, S. M. AND NEWHALL, H. K., COMBUSTION AND FLAME 17, 131 (1971).

S 30. SCHOFIELD, K., J. PHYS. CHEM. REF. DATA 1, NO. 4 (1972). (IN PRESS) ALSO IN DELCO ELECTRONICS TR 71-57 (DECEMBER 1971).

S 31. SLANGER, T. G., WOOD, B. J., AND BLACK, G., INT. J. CHEM. KINETICS 5, 615 (1973).

S 32. STUHL, F. AND NIKI, H., J. CHEM. PHYS. 57, 3671 (1972).

S 33. SKINNER, G. B., LIFSHITZ, A., SCHELLER, K., AND BURCAT, A., J. CHEM. PHYS. 56, 3853 (1972).

S 34. SKINNER, G. B., J. CHEM. PHYS. 58, 412 (1973).

S 35. SIMONAITIS, R. AND HEICKLEN, J., J. CHEM. PHYS. 56, 2004 (1972).

S 36. SOLOUKHIN, R. I., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 77 (1973).

S 37. SCHOTT, G. L., COMBUSTION AND FLAME 21, 357 (1973).

S 38. SLAGLE, I. R., PRUSS, F. J. JR., AND GUTMAN, D., INT. J. CHEM. KINETICS 6, 111 (1974).

REFERENCES (CONT'D)

S 39. SHUI, V. H., J. CHEM. PHYS. 58, 4868 (1973).

REFERENCES (CONT'D)

T 1. TUNDER, R., MAYER, S., COOK, E., AND SCHIELER, L., AEROSPACE CORP., THERMOCHEMISTRY RESEARCH DEPT., AEROSPACE REPORT NO. TR-1001(9210-02)-1, AD 813 485 (1967).

T 2. THRUSH, B. A., PROGRESS IN REACTION KINETICS, G. PORTER, ED. PERGAMON PRESS, OXFORD, 3, 63 (1965).

T 3. TROTMAN-DICKENSON, A. F. AND MILNE, G. S., NSRDS-NBS 9 (1967).

T 4. TROE, J., BER. BUNSENGES PHYSIK CHEM. 73, 144 (1969).

T 5. TROE, J., BER. BUMSENGES. PHYSIK. CHEM. 73, 906 (1969).

T 6. TICKTIN, S., SPINDLER, G., AND SCHIFF, H. I., DISC. FARADAY SOC. 44, 218 (1967).

REFERENCES (CONT'D)

V 1. VOEVODSKY, V. V., AND KONDRATIEV, V. N., PROGRESS IN REACTION KINETICS, G PORTER, ED., PERGAMON PRESS, NEW YORK, 1, 41 (1961).

V 2. VON ELBE, G. AND LEWIS, B., J. CHEM. PHYS. 7, 710 (1939).

V 3. VENUGOPALAN, M., AND JONES, R. A., CHEM. REV. 66, 133 (1966).

V 4. VERBEKE, G. J., AND WINKLER, C. A., J. PHYS. CHEM. 64, 319 (1960).

V 5. VLASTARAS, A. S., AND WINKLER, C. A., CAN. J. CHEM. 45, 2837 (1967).

V 6. VINCENTI, W. G., ARNOLD ENGINEERING DEVELOPMENT CENTRE, AEDC TN-61-65 AD 256 239 (1961).

V 7. VOLMAN, D. H. AND GORSE, R. A., J. PHYS. CHEM. 76, 3301 (1972).

REFERENCES (CONT'D)

W 1. WILSON, WM. E., CHAPTER 5, PAGE 5-2 OF NBS REPORT 9884, EDITED BY D. GARVIN, JULY (1968).

W 2. WESTENBERG, A. A., AND FRISTROM, R. M., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 473 (1965).

W 3. WESTENBERG, A. A., AND DE HAAS, N., J. CHEM. PHYS. 43, 1550 (1965).

W 4. WONG, E. L., AND POTTER, A. E., J. CHEM. PHYS. 43, 3371 (1965).

W 5. WESTENBERG, A. A., CENTRAL PROPULSION INFORMATION AGENCY (UNNUMBERED PUBLICATION) PG. 48 APRIL (1967).

W 6. WRAY, K. L., AND TEARE, J. D., J. CHEM. PHYS. 36, 2582 (1962).

W 7. WRAY, K. L., HYPERSONIC FLOW RESEARCH (PROGRESS IN ASTRONAUTICS AND ROCKETRY, VOLUME 7), F. R. RIDDLE, ED., 181 (1962).

W 8. WESTENBERG, A. A., AND DE HAAS, N., J. CHEM. PHYS. 46, 490 (1967).

W 9. WESTENBERG, A. A., AND DE HAAS, N., J. CHEM. PHYS. 47, 4241 (1967).

W 10. WISE, H., ABLOW, C. M., AND SANCIER, K. M., J. CHEM. PHYS. 41, 3569 (1964).

W 11. WILSON, WM. E., AND O'DONOVAN, J. T., J. CHEM. PHYS. 47 5455 (1967).

W 12. WESTENBERG, A. A., AND DE HAAS, N., J. CHEM. PHYS. 50, 707 (1969).

W 13. WESTENBERG, A. A., AND DE HAAS, N., J. CHEM. PHYS. 40, 3087 (1964).

W 14. WESTENBERG, A. A., AND FRISTROM, R. M., J. PHYS. CHEM. 65, 591 (1961).

W 15. WONG, E. L., AND POTTER, A. E., J. CHEM. PHYS. 39, 2211 (1963)

W 16. WILSON, WM. E., J. CHEM. PHYS. 46, 2017 (1967).

W 17. WRAY, K. L., TEARE, J. D., KIVEL, B., AND HAMMERLING, P., EIGHTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 328 (1960).

REFERENCES (CONT'D)

W 18. WISE, H., AND FRECH, M. F., J. CHEM. PHYS. 20, 22 (1952).

W 19. WISE, H., AND FRECH, M. F., J. CHEM. PHYS. 20, 1724 (1952).

W 20. WILSON, WM. E., AND WESTENBERG, A. A., ELEVENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 1143 (1967).

W 21. WRAY, K. L., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 523 (1965).

W 22. WAGNER, H. G. AND WOLFRUM, J., ANGEW. CHEM. INTERNAT. EDIT. 10, 604 (1971).

W 23. WILDE, K. A., COMBUSTION AND FLAME 13, 173 (1969).

W 24. WATT, W. S. AND MYERSON, A. L., J. CHEM. PHYS. 51, 1638 (1969).

W 25. WESTENBERG, A. A. AND DEHAAS, N., J. CHEM. PHYS. 50, 2512 (1969).

W 26. WAKEFIELD, C. B., RIPLEY, D. L., AND GARDINER, W. C., J. CHEM. PHYS. 50, 325 (1969).

W 27. WONG, E. L. AND POTTER, A. E., CAN. J. CHEM. 45, 367 (1967).

W 28. WESTENBERG, A. A., DEHAAS, N., AND ROSCOE, J. M., J. PHYS. CHEM. 74, 3431 (1970).

W 29. WONG, E. L. AND POTTER, A. E., J. CHEM. PHYS. 39, 2211 (1963).

W 30. WALKER, R. W., J. CHEM. SOC. (A) 1968, 2391 (1968).

W 31. WILSON, W. E., J. PHYS. CHEM. REF. DATA 1,535 (1972).

W 32. WESTENBERG, A. A. AND DEHAAS, N., J. CHEM. PHYS. 58, 4061 (1973).

W 33. WRAY, K. L., J. CHEM. PHYS. 38, 1518 (1963).

W 34. WRAY, K. L., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 523 (1965).

W 35. WRAY, K. L., J. CHEM. PHYS. 37, 1254 (1962).

W 36. WILSON, J., J. FLUID MECH. 15, 497 (1963).

W 37. WENTINK, T., SULLIVAN, J. O., AND WRAY K. L., J. CHEM. PHYS. 29, 231 (1958).

REFERENCES (CONT'D)

W 38. WHITTLE, E. AND STEACIE, E. W. R., J. CHEM. PHYS. 21, 993 (1953).

W 39. WESTENBERG, A. A. AND DEHAAS, N., J. CHEM. PHYS. 58, 4066 (1973).

W 40. WESTENBERG, A. A. AND DE HAAS, N., J. PHYS. CHEM. 76, 2213 (1972).

W 41. WESTENBERG, A. A. AND DE HAAS, N., J. PHYS. CHEM. 76, 2215 (1972).

W 42. WESTENBERG, A. A. AND DE HAAS, N., J. PHYS. CHEM. 76, 1586 (1972).

W 43. WESTENBERG, A. A. AND DE HAAS, N., J. CHEM. PHYS. 57, 5375 (1972).

W 44. WAGNER, H. G., FOURTEENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 27 (1973).

REFERENCES (CONT'D)

Y 1. YUAN, E. L., SLAUGHTER, J. I., KOERNER, W. E., AND DANIELS, F., J. PHYS. CHEM. 63, 952 (1959).

Y 2. YOUNG, R.A. AND BLACK, G., J. CHEM. PHYS. 44, 3741 (1966).

REFERENCES (CONT'D)

Z 1. ZEEGERS, P. J. TH., AND ALKEMADE, C. TH. J., COMBUSTION AND FLAME 9, 247 (1965).

Z 2. ZEEGERS, P. J. TH., AND ALKEMADE, C. TH. J., TENTH SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 33 (1965).

Z 3. ZEEGERS, P. J. T., THESIS, UNIVERSITY OF UTRECHT, HOLLAND, (1966).

Z 4. ZIMET, E., J. CHEM. PHYS. 53, 515 (1970).

Z 5. ZASLONKO, I. S., KOGARKO, S. M., AND MOZZHUKHIN, E. V., KINETICS AND CATALYSIS 10, 987 (1969).

APPENDIX A

THERMOCHEMISTRY OF CH_3O

Only limited information on the thermochemistry of CH_3O was available at the time of this survey. A paper by D.V.S. Jain and M. M. Kapoor in the Proceedings of the National Institute of Science of India (V. A27, No. 2, pp 101-105, 1961) provided estimates for properties from 298-1500K. While no information on CH_3O was available in the JANNAF Tables of Thermochemical Data, there was information on CH_3F which should have a similar heat capacity. The value of the heat of formation of CH_3O was taken from J. A. Kerr, M. J. Parsonage and A. F. Trotman-Dickenson, Handbook of Chemistry and Physics, 54th edition, p. F-210 (1973).

The thermochemistry of CH_3O was calculated from the values* of C_p° for CH_3F as given in the JANNAF tables of Thermochemical Data. The following procedures were used in the calculations.

$$\Delta H^\circ_{f_{298}}(CH_3O) = 3.0 \text{ kcal/mole}$$

Assume $C_p^\circ(CH_3O) = C_p^\circ(CH_3F)$

Use $S_T^\circ = \int_0^T \frac{C_p^\circ}{T}\, dT$

$$\Delta H^\circ_{f_T} = \Delta H^\circ_{f_{298}} + (H_T^\circ - H_{298}^\circ)_{cpd} - \Sigma(H_T^\circ - H_{298}^\circ)_{elem}$$

$$S_T^\circ = -(G_T^\circ - H_T^\circ)/T = (H_T^\circ - H_{298}^\circ)/T - (G_T^\circ - H_{298}^\circ)/T$$

$$(G_T^\circ - H_{298}^\circ)/T = -S_T^\circ + (H_T^\circ - H_{298}^\circ)/T$$

$$\Delta G^\circ_{f_T} = \Delta H^\circ_{f_T} - T(S^\circ_{T_{cpd}} - \Sigma S^\circ_{T_{elem}}) = RT \ln K_p$$

- - - - -

* Table dated December 31, 1963.

To calculate thermochemistry of CH_3O relative to CH_3F

$$CH_3O = C + \frac{3}{2} H_2 + \frac{1}{2} O_2$$

$$CH_3F = C + \frac{3}{2} H_2 + \frac{1}{2} F_2$$

$$CH_3O - CH_3F = \frac{1}{2} O_2 - \frac{1}{2} F_2$$

$$CH_3O = CH_3F + \frac{1}{2} O_2 - \frac{1}{2} F_2$$

To calculate $\Delta H^\circ_{f_T}$ for CH_3O vs. CH_3F

$$\Delta H^\circ_{f_T}(CH_3O) - \Delta H^\circ_{f_T}(CH_3F) = \Delta H^\circ_{f_{298}}(CH_3O) - \Delta H^\circ_{f_{298}}(CH_3F)$$
$$+ (H^\circ_T - H^\circ_{298})_{CH_3O} - (H^\circ_T - H^\circ_{298})_{CH_3F}$$
$$- (H^\circ_T - H^\circ_{298})_{\frac{1}{2} O_2} + (H^\circ_T - H^\circ_{298})_{\frac{1}{2} F_2}$$

To calculate $\Delta G^\circ_{f_T}$ for CH_3O vs. CH_3F

$$\Delta G^\circ_{f_T}(CH_3O) - \Delta G^\circ_{f_T}(CH_3F) = \Delta H^\circ_{f_T}(CH_3O) - \Delta H^\circ_{f_T}(CH_3F)$$
$$- TS^\circ_T(CH_3O) + TS^\circ_T(CH_3F)$$
$$+ TS^\circ_T(\tfrac{1}{2} O_2) - TS^\circ_T(\tfrac{1}{2} F_2)$$

The values calculated for CH_3O are as follows:

	cal mole^{-1} deg^{-1}			kcal mole^{-1}			
T, °K	C_p°	S°	$-\frac{(G^\circ-H^\circ_{298})}{T}$	$H^\circ-H^\circ_{298}$	ΔH_f°	ΔG_f°	Log K_p
298	8.963	53.252	53.252	0.000	3.000	8.790	-6.447
500	12.256	58.638	54.375	2.132	1.726	13.085	-5.719
1000	18.440	69.263	59.288	9.975	0.021	25.251	-5.519
1500	21.550	77.400	64.026	20.062	-0.346	37.982	-5.534
2000	23.135	83.841	68.203	31.275	-0.218	50.743	-5.545
2500	24.006	89.106	71.874	43.080	0.039	63.452	-5.547
3000	24.523	93.532	75.125	55.223	0.273	76.114	-5.545
3500	24.851	97.339	78.032	67.572	0.420	88.742	-5.541
4000	25.072	100.672	80.658	80.056	0.434	101.360	-5.538
4500	25.226	103.635	83.050	92.633	0.296	113.972	-5.535
5000	25.338	106.299	85.244	105.275	-0.002	126.622	-5.535
5500	25.423	108.718	87.270	117.966	-0.460	139.312	-5.548
6000	25.487	110.933	89.150	130.694	-1.081	155.019	-5.647

APPENDIX B

CROSS-INDEX OF REACTIONS FOR 25 SPECIES

As an aid to seeking competitive reactions between the same species or reactions between a given species and competitive partners, a complete sorting of the reactions for each species is provided in this section. For example, if one were seeking reactions to break the N≡N bond in molecular nitrogen, all the reactions of N_2 are listed together. If one were seeking reactions to produce N atoms, all the reactions involving N atoms are listed together. These lists are also useful in determining the probable relative importance of competing reactions as well as determining whether the relative rates used for competing reactions are reasonable.

The species covered in this Appendix are:

CH	HN
CHN	HNO
CHO	HO
CH_2	HO_2
CH_2O	H_2
CH_3	H_2O
CH_3O	N
CH_4	NO
CN	NO_2
CO	N_2
CO_2	N_2O
H	O
	O_2

REACTIONS OF CH

A 1. CH + CHN = CH2 + CN

A 2. CH + CHO = CH2 + CO

A 3. CH + CH2O = CHO + CH2

A 4. CH + CH2O = CH3 + CO

A 5. CH + CH3 = CH2 + CH2

A 6. CH + CH3O = CHO + CH3

A 7. CH + CH3O = CH2 + CH2O

A 8. CH + CH3O = CH4 + CO

A 9. CH + CH4 = CH2 + CH3

A 10. CH + CO2 = CHO + CO

A 11. CH + H + M = CH2 + M

A 12. CH + HN = CHN + H

A 13. CH + HN = CH2 + N

A 14. CH + HN = CN + H2

A 15. CH + HNO = CHN + HO

A 16. CH + HNO = CHO + HN

A 17. CH + HNO = CH2 + NO

A 18. CH + HNO = CH2O + N

A 19. CH + HNO = CN + H2O

A 20. CH + HO = CHO + H

A 21. CH + HO = CH2 + O

A 22. CH + HO + M = CH2O + M

A 23. CH + HO = CO + H2

A 24. CH + HO2 = CHO + HO

A 25. CH + HO2 = CH2 + O2

REACTIONS OF CH

A 26.	CH	+ HO2		=	CH2O	+ O		
A 27.	CH	+ HO2		=	CO	+ H2O		
A 28.	CH	+ HO2		=	CO2	+ H2		
A 29.	CH	+ H2		=	CH2	+ H		
A 30.	CH	+ H2	+ M	=	CH3		+ M	
A 31.	CH	+ H2O		=	CHO	+ H2		
A 32.	CH	+ H2O		=	CH2	+ HO		
A 33.	CH	+ H2O		=	CH2O	+ H		
A 34.	CH	+ H2O		=	CH3	+ O		
A 35.	CH	+ H2O	+ M	=	CH3O		+ M	
A 36.	CH	+ N	+ M	=	CHN		+ M	
A 37.	CH	+ N		=	CN	+ H		
A 38.	CH	+ NO		=	CHN	+ O		
A 39.	CH	+ NO		=	CHO	+ N		
A 40.	CH	+ NO		=	CN	+ HO		
A 41.	CH	+ NO		=	CO	+ HN		
A 42.	CH	+ NO2		=	CHN	+ O2		
A 43.	CH	+ NO2		=	CHO	+ NO		
A 44.	CH	+ NO2		=	CN	+ HO2		
A 45.	CH	+ NO2		=	CO	+ HNO		
A 46.	CH	+ NO2		=	CO2	+ HN		
A 47.	CH	+ N2		=	CHN	+ N		
A 48.	CH	+ N2		=	CN	+ HN		
A 49.	CH	+ N2O		=	CHN	+ NO		
A 50.	CH	+ N2O		=	CHO	+ N2		

REACTIONS OF CH

A 51. CH + N2O = CN + HNO

A 52. CH + O + M = CHO + M

A 53. CH + O = CO + H

A 54. CH + O2 = CHO + O

A 55. CH + O2 = CO + HO

A 56. CH + O2 = CO2 + H

REACTIONS OF CHN

C 36.	CHN		+ M	= CH	+ N	+ M
A 57.	CHN		+ M	= CN	+ H	+ M
B 1.	CHN	+ CH		= CH2	+ CN	
A 58.	CHN	+ CHO		= CH2O	+ CN	
A 59.	CHN	+ CH2		= CH3	+ CN	
A 60.	CHN	+ CH2O		= CH3O	+ CN	
A 61.	CHN	+ CH3		= CH4	+ CN	
A 62.	CHN	+ CO		= CHO	+ CN	
C 12.	CHN	+ H		= CH	+ HN	
A 63.	CHN	+ H		= CH2	+ N	
A 64.	CHN	+ H		= CN	+ H2	
A 65.	CHN	+ HN		= CH2	+ N2	
A 66.	CHN	+ HNO		= CH2	+ N2O	
A 67.	CHN	+ HNO		= CH2O	+ N2	
C 15.	CHN	+ HO		= CH	+ HNO	
A 68.	CHN	+ HO		= CHO	+ HN	
A 69.	CHN	+ HO		= CH2	+ NO	
A 70.	CHN	+ HO		= CH2O	+ N	
A 71.	CHN	+ HO		= CN	+ H2O	
A 72.	CHN	+ HO2		= CHO	+ HNO	
A 73.	CHN	+ HO2		= CH2	+ NO2	
A 74.	CHN	+ HO2		= CH2O	+ NO	
A 75.	CHN	+ H2		= CH2	+ HN	
A 76.	CHN	+ H2		= CH3	+ N	
A 77.	CHN	+ H2O		= CH2	+ HNO	

REACTIONS OF CHN

A 78.	CHN	+ H2O	=	CH2O	+	HN
A 79.	CHN	+ H2O	=	CH3	+	NO
A 80.	CHN	+ H2O	=	CH3O	+	N
C 47.	CHN	+ N	=	CH	+	N2
A 81.	CHN	+ N	=	CN	+	HN
C 49.	CHN	+ NO	=	CH	+	N2O
A 82.	CHN	+ NO	=	CHO	+	N2
A 83.	CHN	+ NO	=	CN	+	HNO
A 84.	CHN	+ NO2	=	CHO	+	N2O
C 38.	CHN	+ O	=	CH	+	NO
A 85.	CHN	+ O	=	CHO	+	N
A 86.	CHN	+ O	=	CN	+	HO
A 87.	CHN	+ O	=	CO	+	HN
C 42.	CHN	+ O2	=	CH	+	NO2
A 88.	CHN	+ O2	=	CHO	+	NO
A 89.	CHN	+ O2	=	CN	+	HO2
A 90.	CHN	+ O2	=	CO	+	HNO
A 91.	CHN	+ O2	=	CO2	+	HN

REACTIONS OF CHO

C 52.	CHO		+ M	=	CH	+ O	+ M
A 92.	CHO		+ M	=	CO	+ H	+ M
B 2.	CHO	+ CH		=	CH2	+ CO	
B 58.	CHO	+ CHN		=	CH2O	+ CN	
A 93.	CHO	+ CHO		=	CH2	+ CO2	
A 94.	CHO	+ CHO		=	CH2O	+ CO	
C 3.	CHO	+ CH2		=	CH	+ CH2O	
A 95.	CHO	+ CH2		=	CH3	+ CO	
A 96.	CHO	+ CH2O		=	CH3	+ CO2	
A 97.	CHO	+ CH2O		=	CH3O	+ CO	
C 6.	CHO	+ CH3		=	CH	+ CH3O	
A 98.	CHO	+ CH3		=	CH2	+ CH2O	
A 99.	CHO	+ CH3		=	CH4	+ CO	
A100.	CHO	+ CH3O		=	CH2O	+ CH2O	
A101.	CHO	+ CH3O		=	CH4	+ CO2	
A102.	CHO	+ CH4		=	CH2	+ CH3O	
A103.	CHO	+ CH4		=	CH2O	+ CH3	
C 62.	CHO	+ CN		=	CHN	+ CO	
C 10.	CHO	+ CO		=	CH	+ CO2	
C 20.	CHO	+ H		=	CH	+ HO	
A104.	CHO	+ H		=	CH2	+ O	
A105.	CHO	+ H	+ M	=	CH2O		+ M
A106.	CHO	+ H		=	CO	+ H2	
C 16.	CHO	+ HN		=	CH	+ HNO	
C 68.	CHO	+ HN		=	CHN	+ HO	

REACTIONS OF CHO

A107. CHO + HN = CH2 + NO

A108. CHO + HN = CH2O + N

A109. CHO + HN = CN + H2O

C 72. CHO + HNO = CHN + HO2

A110. CHO + HNO = CH2 + NO2

A111. CHO + HNO = CH2O + NO

C 24. CHO + HO = CH + HO2

A112. CHO + HO = CH2 + O2

A113. CHO + HO = CH2O + O

A114. CHO + HO = CO + H2O

A115. CHO + HO = CO2 + H2

A116. CHO + HO2 = CH2O + O2

A117. CHO + HO2 = CO2 + H2O

C 31. CHO + H2 = CH + H2O

A118. CHO + H2 = CH2 + HO

A119. CHO + H2 = CH2O + H

A120. CHO + H2 = CH3 + O

A121. CHO + H2 + M = CH3O + M

A122. CHO + H2O = CH2 + HO2

A123. CHO + H2O = CH2O + HO

A124. CHO + H2O = CH3 + O2

A125. CHO + H2O = CH3O + O

C 39. CHO + N = CH + NO

C 85. CHO + N = CHN + O

A126. CHO + N = CN + HO

REACTIONS OF CHO

A127.	CHO	+ N	=	CO	+ HN	
C 43.	CHO	+ NO	=	CH	+ NO2	
C 88.	CHO	+ NO	=	CHN	+ O2	
A128.	CHO	+ NO	=	CN	+ HO2	
A129.	CHO	+ NO	=	CO	+ HNO	
A130.	CHO	+ NO	=	CO2	+ HN	
A131.	CHO	+ NO2	=	CO2	+ HNO	
C 50.	CHO	+ N2	=	CH	+ N2O	
C 82.	CHO	+ N2	=	CHN	+ NO	
A132.	CHO	+ N2	=	CN	+ HNO	
C 84.	CHO	+ N2O	=	CHN	+ NO2	
C 54.	CHO	+ O	=	CH	+ O2	
A133.	CHO	+ O	=	CO	+ HO	
A134.	CHO	+ O	=	CO2	+ H	
A135.	CHO	+ O2	=	CO	+ HO2	
A136.	CHO	+ O2	=	CO2	+ HO	

REACTIONS OF CH2

C 11.	CH2		+ M	=	CH	+ H		+ M
B 59.	CH2	+ CHN		=	CH3	+ CN		
D 3.	CH2	+ CHO		=	CH	+ CH2O		
B 95.	CH2	+ CHO		=	CH3	+ CO		
C 5.	CH2	+ CH2		=	CH	+ CH3		
C 7.	CH2	+ CH2O		=	CH	+ CH3O		
C 98.	CH2	+ CH2O		=	CHO	+ CH3		
A137.	CH2	+ CH2O		=	CH4	+ CO		
C 9.	CH2	+ CH3		=	CH	+ CH4		
C102.	CH2	+ CH3O		=	CHO	+ CH4		
A138.	CH2	+ CH3O		=	CH2O	+ CH3		
A139.	CH2	+ CH4		=	CH3	+ CH3		
C 1.	CH2	+ CN		=	CH	+ CHN		
C 2.	CH2	+ CO		=	CH	+ CHO		
C 93.	CH2	+ CO2		=	CHO	+ CHO		
A140.	CH2	+ CO2		=	CH2O	+ CO		
C 29.	CH2	+ H		=	CH	+ H2		
A141.	CH2	+ H	+ M	=	CH3		+ M	
C 75.	CH2	+ HN		=	CHN	+ H2		
A142.	CH2	+ HN		=	CH3	+ N		
C 77.	CH2	+ HNO		=	CHN	+ H2O		
A143.	CH2	+ HNO		=	CH2O	+ HN		
A144.	CH2	+ HNO		=	CH3	+ NO		
A145.	CH2	+ HNO		=	CH3O	+ N		
C 32.	CH2	+ HO		=	CH	+ H2O		

REACTIONS OF CH2

C118. CH2 + HO = CHO + H2

A146. CH2 + HO = CH2O + H

A147. CH2 + HO = CH3 + O

A148. CH2 + HO + M = CH3O + M

C122. CH2 + HO2 = CHO + H2O

A149. CH2 + HO2 = CH2O + HO

A150. CH2 + HO2 = CH3 + O2

A151. CH2 + HO2 = CH3O + O

A152. CH2 + H2 = CH3 + H

A153. CH2 + H2 + M = CH4 + M

A154. CH2 + H2O = CH2O + H2

A155. CH2 + H2O = CH3 + HO

A156. CH2 + H2O = CH3O + H

A157. CH2 + H2O = CH4 + O

C 13. CH2 + N = CH + HN

C 63. CH2 + N = CHN + H

A158. CH2 + N = CN + H2

C 17. CH2 + NO = CH + HNO

C 69. CH2 + NO = CHN + HO

C107. CH2 + NO = CHO + HN

A159. CH2 + NO = CH2O + N

A160. CH2 + NO = CN + H2O

C 73. CH2 + NO2 = CHN + HO2

C110. CH2 + NO2 = CHO + HNO

A161. CH2 + NO2 = CH2O + NO

REACTIONS OF CH2

C 65. CH2 + N2 = CHN + HN

C 66. CH2 + N2O = CHN + HNO

A162. CH2 + N2O = CH2O + N2

C 21. CH2 + O = CH + HO

C104. CH2 + O = CHO + H

A163. CH2 + O + M = CH2O + M

A164. CH2 + O = CO + H2

C 25. CH2 + O2 = CH + HO2

C112. CH2 + O2 = CHO + HO

A165. CH2 + O2 = CH2O + O

A166. CH2 + O2 = CO + H2O

A167. CH2 + O2 = CO2 + H2

REACTIONS OF CH2O

C 22.	CH2O	+ M	=	CH	+ HO	+ M
C105.	CH2O	+ M	=	CHO	+ H	+ M
C163.	CH2O	+ M	=	CH2	+ O	+ M
A168.	CH2O	+ M	=	CO	+ H2	+ M
B 3.	CH2O + CH		=	CHO	+ CH2	
B 4.	CH2O + CH		=	CH3	+ CO	
B 60.	CH2O + CHN		=	CH3O	+ CN	
B 96.	CH2O + CHO		=	CH3	+ CO2	
B 97.	CH2O + CHO		=	CH3O	+ CO	
D 7.	CH2O + CH2		=	CH	+ CH3O	
D 98.	CH2O + CH2		=	CHO	+ CH3	
B137.	CH2O + CH2		=	CH4	+ CO	
C100.	CH2O + CH2O		=	CHO	+ CH3O	
A169.	CH2O + CH2O		=	CH4	+ CO2	
C103.	CH2O + CH3		=	CHO	+ CH4	
C138.	CH2O + CH3		=	CH2	+ CH3O	
A170.	CH2O + CH4		=	CH3	+ CH3O	
C 58.	CH2O + CN		=	CHN	+ CHO	
C 94.	CH2O + CO		=	CHO	+ CHO	
C140.	CH2O + CO		=	CH2	+ CO2	
C 33.	CH2O + H		=	CH	+ H2O	
C119.	CH2O + H		=	CHO	+ H2	
C146.	CH2O + H		=	CH2	+ HO	
A171.	CH2O + H		=	CH3	+ O	
A172.	CH2O + H	+ M	=	CH3O		+ M

REACTIONS OF CH2O

C 78.	CH2O + HN	= CHN + H2O
C143.	CH2O + HN	= CH2 + HNO
A173.	CH2O + HN	= CH3 + NO
A174.	CH2O + HN	= CH3O + N
A175.	CH2O + HNO	= CH3 + NO2
A176.	CH2O + HNO	= CH3O + NO
C123.	CH2O + HO	= CHO + H2O
C149.	CH2O + HO	= CH2 + HO2
A177.	CH2O + HO	= CH3 + O2
A178.	CH2O + HO	= CH3O + O
A179.	CH2O + HO2	= CH3O + O2
C154.	CH2O + H2	= CH2 + H2O
A180.	CH2O + H2	= CH3 + HO
A181.	CH2O + H2	= CH3O + H
A182.	CH2O + H2	= CH4 + O
A183.	CH2O + H2O	= CH3 + HO2
A184.	CH2O + H2O	= CH3O + HO
A185.	CH2O + H2O	= CH4 + O2
C 18.	CH2O + N	= CH + HNO
C 70.	CH2O + N	= CHN + HO
C108.	CH2O + N	= CHO + HN
C159.	CH2O + N	= CH2 + NO
A186.	CH2O + N	= CN + H2O
C 74.	CH2O + NO	= CHN + HO2
C111.	CH2O + NO	= CHO + HNO

REACTIONS OF CH2O

C161.	CH2O + NO	= CH2 + NO2
C 67.	CH2O + N2	= CHN + HNO
C162.	CH2O + N2	= CH2 + N2O
C 26.	CH2O + O	= CH + HO2
C113.	CH2O + O	= CHO + HO
C165.	CH2O + O	= CH2 + O2
A187.	CH2O + O	= CO + H2O
A188.	CH2O + O	= CO2 + H2
C116.	CH2O + O2	= CHO + HO2
A189.	CH2O + O2	= CO2 + H2O

REACTIONS OF CH3

C 30.	CH3		+ M	=	CH	+ H2	+ M
C141.	CH3		+ M	=	CH2	+ H	+ M
B 5.	CH3	+ CH		=	CH2	+ CH2	
B 61.	CH3	+ CHN		=	CH4	+ CN	
D 6.	CH3	+ CHO		=	CH	+ CH3O	
B 98.	CH3	+ CHO		=	CH2	+ CH2O	
B 99.	CH3	+ CHO		=	CH4	+ CO	
D 9.	CH3	+ CH2		=	CH	+ CH4	
D103.	CH3	+ CH2O		=	CHO	+ CH4	
D138.	CH3	+ CH2O		=	CH2	+ CH3O	
C139.	CH3	+ CH3		=	CH2	+ CH4	
C170.	CH3	+ CH3O		=	CH2O	+ CH4	
C 59.	CH3	+ CN		=	CHN	+ CH2	
C 4.	CH3	+ CO		=	CH	+ CH2O	
C 95.	CH3	+ CO		=	CHO	+ CH2	
C 96.	CH3	+ CO2		=	CHO	+ CH2O	
A190.	CH3	+ CO2		=	CH3O	+ CO	
C152.	CH3	+ H		=	CH2	+ H2	
A191.	CH3	+ H	+ M	=	CH4		+ M
A192.	CH3	+ HN		=	CH4	+ N	
A193.	CH3	+ HNO		=	CH3O	+ HN	
A194.	CH3	+ HNO		=	CH4	+ NO	
C155.	CH3	+ HO		=	CH2	+ H2O	
C180.	CH3	+ HO		=	CH2O	+ H2	
A195.	CH3	+ HO		=	CH3O	+ H	

REACTIONS OF CH3

A196.	CH3	+ HO		=	CH4	+ O		
C183.	CH3	+ HO2		=	CH2O	+ H2O		
A197.	CH3	+ HO2		=	CH3O	+ HO		
A198.	CH3	+ HO2		=	CH4	+ O2		
A199.	CH3	+ H2		=	CH4	+ H		
A200.	CH3	+ H2O		=	CH3O	+ H2		
A201.	CH3	+ H2O		=	CH4	+ HO		
C 76.	CH3	+ N		=	CHN	+ H2		
C142.	CH3	+ N		=	CH2	+ HN		
C 79.	CH3	+ NO		=	CHN	+ H2O		
C144.	CH3	+ NO		=	CH2	+ HNO		
C173.	CH3	+ NO		=	CH2O	+ HN		
A202.	CH3	+ NO		=	CH3O	+ N		
C175.	CH3	+ NO2		=	CH2O	+ HNO		
A203.	CH3	+ NO2		=	CH3O	+ NO		
A204.	CH3	+ N2O		=	CH3O	+ N2		
C 34.	CH3	+ O		=	CH	+ H2O		
C120.	CH3	+ O		=	CHO	+ H2		
C147.	CH3	+ O		=	CH2	+ HO		
C171.	CH3	+ O		=	CH2O	+ H		
A205.	CH3	+ O	+ M	=	CH3O		+ M	
C124.	CH3	+ O2		=	CHO	+ H2O		
C150.	CH3	+ O2		=	CH2	+ HO2		
C177.	CH3	+ O2		=	CH2O	+ HO		
A206.	CH3	+ O2		=	CH3O	+ O		

REACTIONS OF CH3O

C 35.	CH3O	+ M	=	CH	+ H2O	+ M
C121.	CH3O	+ M	=	CHO	+ H2	+ M
C148.	CH3O	+ M	=	CH2	+ HO	+ M
C172.	CH3O	+ M	=	CH2O	+ H	+ M
C205.	CH3O	+ M	=	CH3	+ O	+ M
B 6.	CH3O + CH		=	CHO	+ CH3	
B 7.	CH3O + CH		=	CH2	+ CH2O	
B 8.	CH3O + CH		=	CH4	+ CO	
B100.	CH3O + CHO		=	CH2O	+ CH2O	
B101.	CH3O + CHO		=	CH4	+ CO2	
D102.	CH3O + CH2		=	CHO	+ CH4	
B138.	CH3O + CH2		=	CH2O	+ CH3	
D170.	CH3O + CH3		=	CH2O	+ CH4	
C 60.	CH3O + CN		=	CHN	+ CH2O	
C 97.	CH3O + CO		=	CHO	+ CH2O	
C190.	CH3O + CO		=	CH3	+ CO2	
C156.	CH3O + H		=	CH2	+ H2O	
C181.	CH3O + H		=	CH2O	+ H2	
C195.	CH3O + H		=	CH3	+ HO	
A207.	CH3O + H		=	CH4	+ O	
C193.	CH3O + HN		=	CH3	+ HNO	
A208.	CH3O + HN		=	CH4	+ NO	
A209.	CH3O + HNO		=	CH4	+ NO2	
C184.	CH3O + HO		=	CH2O	+ H2O	
C197.	CH3O + HO		=	CH3	+ HO2	

REACTIONS OF CH3O

A210.	CH3O + HO	= CH4 + O2
C200.	CH3O + H2	= CH3 + H2O
A211.	CH3O + H2	= CH4 + HO
A212.	CH3O + H2O	= CH4 + HO2
C 80.	CH3O + N	= CHN + H2O
C145.	CH3O + N	= CH2 + HNO
C174.	CH3O + N	= CH2O + HN
C202.	CH3O + N	= CH3 + NO
C176.	CH3O + NO	= CH2O + HNO
C203.	CH3O + NO	= CH3 + NO2
C204.	CH3O + N2	= CH3 + N2O
C125.	CH3O + O	= CHO + H2O
C151.	CH3O + O	= CH2 + HO2
C178.	CH3O + O	= CH2O + HO
C206.	CH3O + O	= CH3 + O2
C179.	CH3O + O2	= CH2O + HO2

REACTIONS OF CH4

C153. CH4 + M = CH2 + H2 + M

C191. CH4 + M = CH3 + H + M

B 9. CH4 + CH = CH2 + CH3

B102. CH4 + CHO = CH2 + CH3O

B103. CH4 + CHO = CH2O + CH3

B139. CH4 + CH2 = CH3 + CH3

B170. CH4 + CH2O = CH3 + CH3O

C 61. CH4 + CN = CHN + CH3

C 8. CH4 + CO = CH + CH3O

C 99. CH4 + CO = CHO + CH3

C137. CH4 + CO = CH2 + CH2O

C101. CH4 + CO2 = CHO + CH3O

C169. CH4 + CO2 = CH2O + CH2O

C199. CH4 + H = CH3 + H2

C201. CH4 + HO = CH3 + H2O

C211. CH4 + HO = CH3O + H2

C212. CH4 + HO2 = CH3O + H2O

C192. CH4 + N = CH3 + HN

C194. CH4 + NO = CH3 + HNO

C208. CH4 + NO = CH3O + HN

C209. CH4 + NO2 = CH3O + HNO

C157. CH4 + O = CH2 + H2O

C182. CH4 + O = CH2O + H2

C196. CH4 + O = CH3 + HO

C207. CH4 + O = CH3O + H

REACTIONS OF CH4

C185. CH4 + O2 = CH2O + H2O

C198. CH4 + O2 = CH3 + HO2

C210. CH4 + O2 = CH3O + HO

REACTIONS OF CN

D 62.	CN	+	CHO		=	CHN	+	CO	
D 1.	CN	+	CH2		=	CH	+	CHN	
D 58.	CN	+	CH2O		=	CHN	+	CHO	
D 59.	CN	+	CH3		=	CHN	+	CH2	
D 60.	CN	+	CH3O		=	CHN	+	CH2O	
D 61.	CN	+	CH4		=	CHN	+	CH3	
C 37.	CN	+	H		=	CH	+	N	
C 57.	CN	+	H	+ M	=	CHN			+ M
C 48.	CN	+	HN		=	CH	+	N2	
C 81.	CN	+	HN		=	CHN	+	N	
C 51.	CN	+	HNO		=	CH	+	N2O	
C 83.	CN	+	HNO		=	CHN	+	NO	
C132.	CN	+	HNO		=	CHO	+	N2	
C 40.	CN	+	HO		=	CH	+	NO	
C 86.	CN	+	HO		=	CHN	+	O	
C126.	CN	+	HO		=	CHO	+	N	
A213.	CN	+	HO		=	CO	+	HN	
C 44.	CN	+	HO2		=	CH	+	NO2	
C 89.	CN	+	HO2		=	CHN	+	O2	
C128.	CN	+	HO2		=	CHO	+	NO	
A214.	CN	+	HO2		=	CO	+	HNO	
A215.	CN	+	HO2		=	CO2	+	HN	
C 14.	CN	+	H2		=	CH	+	HN	
C 64.	CN	+	H2		=	CHN	+	H	
C158.	CN	+	H2		=	CH2	+	N	

REACTIONS OF CN

C 19.	CN	+ H2O	=	CH	+	HNO
C 71.	CN	+ H2O	=	CHN	+	HO
C109.	CN	+ H2O	=	CHO	+	HN
C160.	CN	+ H2O	=	CH2	+	NO
C186.	CN	+ H2O	=	CH2O	+	N
A216.	CN	+ NO	=	CO	+	N2
A217.	CN	+ NO2	=	CO	+	N2O
A218.	CN	+ NO2	=	CO2	+	N2
A219.	CN	+ O	=	CO	+	N
A220.	CN	+ O2	=	CO	+	NO
A221.	CN	+ O2	=	CO2	+	N

REACTIONS OF CO

B 62.	CO	+	CHN		=	CHO	+	CN	
D 10.	CO	+	CHO		=	CH	+	CO2	
D 2.	CO	+	CH2		=	CH	+	CHO	
D 94.	CO	+	CH2O		=	CHO	+	CHO	
D140.	CO	+	CH2O		=	CH2	+	CO2	
D 4.	CO	+	CH3		=	CH	+	CH2O	
D 95.	CO	+	CH3		=	CHO	+	CH2	
D 97.	CO	+	CH3O		=	CHO	+	CH2O	
D190.	CO	+	CH3O		=	CH3	+	CO2	
D 8.	CO	+	CH4		=	CH	+	CH3O	
D 99.	CO	+	CH4		=	CHO	+	CH3	
D137.	CO	+	CH4		=	CH2	+	CH2O	
C 53.	CO	+	H		=	CH	+	O	
C 92.	CO	+	H	+ M	=	CHO			+ M
C 41.	CO	+	HN		=	CH	+	NO	
C 87.	CO	+	HN		=	CHN	+	O	
C127.	CO	+	HN		=	CHO	+	N	
C213.	CO	+	HN		=	CN	+	HO	
C 45.	CO	+	HNO		=	CH	+	NO2	
C 90.	CO	+	HNO		=	CHN	+	O2	
C129.	CO	+	HNO		=	CHO	+	NO	
C214.	CO	+	HNO		=	CN	+	HO2	
A222.	CO	+	HNO		=	CO2	+	HN	
C 55.	CO	+	HO		=	CH	+	O2	
C133.	CO	+	HO		=	CHO	+	O	

REACTIONS OF CO

A223.	CO	+	HO		=	CO_2	+	H
C135.	CO	+	HO_2		=	CHO	+	O_2
A224.	CO	+	HO_2		=	CO_2	+	HO
C 23.	CO	+	H_2		=	CH	+	HO
C106.	CO	+	H_2		=	CHO	+	H
C164.	CO	+	H_2		=	CH_2	+	O
C168.	CO	+	H_2	+ M	=	CH_2O		+ M
C 27.	CO	+	H_2O		=	CH	+	HO_2
C114.	CO	+	H_2O		=	CHO	+	HO
C166.	CO	+	H_2O		=	CH_2	+	O_2
C187.	CO	+	H_2O		=	CH_2O	+	O
A225.	CO	+	H_2O		=	CO_2	+	H_2
C219.	CO	+	N		=	CN	+	O
C220.	CO	+	NO		=	CN	+	O_2
A226.	CO	+	NO		=	CO_2	+	N
A227.	CO	+	NO_2		=	CO_2	+	NO
C216.	CO	+	N_2		=	CN	+	NO
C217.	CO	+	N_2O		=	CN	+	NO_2
A228.	CO	+	N_2O		=	CO_2	+	N_2
A229.	CO	+	O	+ M	=	CO_2		+ M
A230.	CO	+	O_2		=	CO_2	+	O

REACTIONS OF CO2

C229.	CO2		+ M	=	CO	+ O	+ M
B 10.	CO2	+ CH		=	CHO	+ CO	
D 93.	CO2	+ CH2		=	CHO	+ CHO	
B140.	CO2	+ CH2		=	CH2O	+ CO	
D 96.	CO2	+ CH3		=	CHO	+ CH2O	
B190.	CO2	+ CH3		=	CH3O	+ CO	
D101.	CO2	+ CH4		=	CHO	+ CH3O	
D169.	CO2	+ CH4		=	CH2O	+ CH2O	
C 56.	CO2	+ H		=	CH	+ O2	
C134.	CO2	+ H		=	CHO	+ O	
C223.	CO2	+ H		=	CO	+ HO	
C 46.	CO2	+ HN		=	CH	+ NO2	
C 91.	CO2	+ HN		=	CHN	+ O2	
C130.	CO2	+ HN		=	CHO	+ NO	
C215.	CO2	+ HN		=	CN	+ HO2	
C222.	CO2	+ HN		=	CO	+ HNO	
C131.	CO2	+ HNO		=	CHO	+ NO2	
C136.	CO2	+ HO		=	CHO	+ O2	
C224.	CO2	+ HO		=	CO	+ HO2	
C 28.	CO2	+ H2		=	CH	+ HO2	
C115.	CO2	+ H2		=	CHO	+ HO	
C167.	CO2	+ H2		=	CH2	+ O2	
C188.	CO2	+ H2		=	CH2O	+ O	
C225.	CO2	+ H2		=	CO	+ H2O	
C117.	CO2	+ H2O		=	CHO	+ HO2	

REACTIONS OF CO2

C189. CO2 + H2O = CH2O + O2

C221. CO2 + N = CN + O2

C226. CO2 + N = CO + NO

C227. CO2 + NO = CO + NO2

C218. CO2 + N2 = CN + NO2

C228. CO2 + N2 = CO + N2O

C230. CO2 + O = CO + O2

REACTIONS OF H

B 11.	H	+ CH	+ M	= CH2		+ M
D 12.	H	+ CHN		= CH	+ HN	
B 63.	H	+ CHN		= CH2	+ N	
B 64.	H	+ CHN		= CN	+ H2	
D 20.	H	+ CHO		= CH	+ HO	
B104.	H	+ CHO		= CH2	+ O	
B105.	H	+ CHO	+ M	= CH2O		+ M
B106.	H	+ CHO		= CO	+ H2	
D 29.	H	+ CH2		= CH	+ H2	
B141.	H	+ CH2	+ M	= CH3		+ M
D 33.	H	+ CH2O		= CH	+ H2O	
D119.	H	+ CH2O		= CHO	+ H2	
D146.	H	+ CH2O		= CH2	+ HO	
B171.	H	+ CH2O		= CH3	+ O	
B172.	H	+ CH2O	+ M	= CH3O		+ M
D152.	H	+ CH3		= CH2	+ H2	
B191.	H	+ CH3	+ M	= CH4		+ M
D156.	H	+ CH3O		= CH2	+ H2O	
D181.	H	+ CH3O		= CH2O	+ H2	
D195.	H	+ CH3O		= CH3	+ HO	
B207.	H	+ CH3O		= CH4	+ O	
D199.	H	+ CH4		= CH3	+ H2	
D 37.	H	+ CN		= CH	+ N	
D 57.	H	+ CN	+ M	= CHN		+ M
D 53.	H	+ CO		= CH	+ O	

REACTIONS OF H

D 92.	H	+ CO	+ M	= CHO		+ M
D 56.	H	+ CO2		= CH	+ O2	
D134.	H	+ CO2		= CHO	+ O	
D223.	H	+ CO2		= CO	+ HO	
A231.	H	+ H	+ M	= H2		+ M
A232.	H	+ HN		= H2	+ N	
A233.	H	+ HNO		= HN	+ HO	
A234.	H	+ HNO		= H2	+ NO	
A235.	H	+ HNO		= H2O	+ N	
A236.	H	+ HO		= H2	+ O	
A237.	H	+ HO	+ M	= H2O		+ M
A238.	H	+ HO2		= HO	+ HO	
A239.	H	+ HO2		= H2	+ O2	
A240.	H	+ HO2		= H2O	+ O	
A241.	H	+ H2O		= HO	+ H2	
A242.	H	+ N	+ M	= HN		+ M
A243.	H	+ NO		= HN	+ O	
A244.	H	+ NO	+ M	= HNO		+ M
A245.	H	+ NO		= HO	+ N	
A246.	H	+ NO2		= HN	+ O2	
A247.	H	+ NO2		= HNO	+ O	
A248.	H	+ NO2		= HO	+ NO	
A249.	H	+ NO2		= HO2	+ N	
A250.	H	+ N2		= HN	+ N	
A251.	H	+ N2O		= HN	+ NO	

REACTIONS OF H

A252.	H	+	N2O		=	HNO	+	N
A253.	H	+	N2O		=	HO	+	N2
A254.	H	+	O	+ M	=	HO		+ M
A255.	H	+	O2		=	HO	+	O
A256.	H	+	O2	+ M	=	HO2		+ M

REACTIONS OF HN

C242.	HN		+ M	= H	+ N	+ M		
B 12.	HN	+ CH		= CHN	+ H			
B 13.	HN	+ CH		= CH2	+ N			
B 14.	HN	+ CH		= CN	+ H2			
B 65.	HN	+ CHN		= CH2	+ N2			
D 16.	HN	+ CHO		= CH	+ HNO			
D 68.	HN	+ CHO		= CHN	+ HO			
B107.	HN	+ CHO		= CH2	+ NO			
B108.	HN	+ CHO		= CH2O	+ N			
B109.	HN	+ CHO		= CN	+ H2O			
D 75.	HN	+ CH2		= CHN	+ H2			
B142.	HN	+ CH2		= CH3	+ N			
D 78.	HN	+ CH2O		= CHN	+ H2O			
D143.	HN	+ CH2O		= CH2	+ HNO			
B173.	HN	+ CH2O		= CH3	+ NO			
B174.	HN	+ CH2O		= CH3O	+ N			
B192.	HN	+ CH3		= CH4	+ N			
D193.	HN	+ CH3O		= CH3	+ HNO			
B208.	HN	+ CH3O		= CH4	+ NO			
D 48.	HN	+ CN		= CH	+ N2			
D 81.	HN	+ CN		= CHN	+ N			
D 41.	HN	+ CO		= CH	+ NO			
D 87.	HN	+ CO		= CHN	+ O			
D127.	HN	+ CO		= CHO	+ N			
D213.	HN	+ CO		= CN	+ HO			

REACTIONS OF HN

D 46.	HN	+ CO2	=	CH	+ NO2
D 91.	HN	+ CO2	=	CHN	+ O2
D130.	HN	+ CO2	=	CHO	+ NO
D215.	HN	+ CO2	=	CN	+ HO2
D222.	HN	+ CO2	=	CO	+ HNO
B232.	HN	+ H	=	H2	+ N
A257.	HN	+ HN	=	H2	+ N2
A258.	HN	+ HNO	=	H2	+ N2O
A259.	HN	+ HNO	=	H2O	+ N2
C233.	HN	+ HO	=	H	+ HNO
A260.	HN	+ HO	=	H2	+ NO
A261.	HN	+ HO	=	H2O	+ N
A262.	HN	+ HO2	=	HNO	+ HO
A263.	HN	+ HO2	=	H2	+ NO2
A264.	HN	+ HO2	=	H2O	+ NO
A265.	HN	+ H2O	=	HNO	+ H2
C250.	HN	+ N	=	H	+ N2
C251.	HN	+ NO	=	H	+ N2O
A266.	HN	+ NO	=	HNO	+ N
A267.	HN	+ NO	=	HO	+ N2
A268.	HN	+ NO2	=	HNO	+ NO
A269.	HN	+ NO2	=	HO	+ N2O
A270.	HN	+ NO2	=	HO2	+ N2
A271.	HN	+ N2O	=	HNO	+ N2
C243.	HN	+ O	=	H	+ NO

REACTIONS OF HN

A272.	HN	+ O	+ M	=	HNO			+ M
A273.	HN	+ O		=	HO	+	N	
C246.	HN	+ O2		=	H	+	NO2	
A274.	HN	+ O2		=	HNO	+	O	
A275.	HN	+ O2		=	HO	+	NO	
A276.	HN	+ O2		=	HO2	+	N	

REACTIONS OF HNO

C244.	HNO		+ M	= H	+ NO	+ M
C272.	HNO		+ M	= HN	+ O	+ M
A277.	HNO		+ M	= HO	+ N	+ M
B 15.	HNO	+ CH		= CHN	+ HO	
B 16.	HNO	+ CH		= CHO	+ HN	
B 17.	HNO	+ CH		= CH2	+ NO	
B 18.	HNO	+ CH		= CH2O	+ N	
B 19.	HNO	+ CH		= CN	+ H2O	
B 66.	HNO	+ CHN		= CH2	+ N2O	
B 67.	HNO	+ CHN		= CH2O	+ N2	
D 72.	HNO	+ CHO		= CHN	+ HO2	
B110.	HNO	+ CHO		= CH2	+ NO2	
B111.	HNO	+ CHO		= CH2O	+ NO	
D 77.	HNO	+ CH2		= CHN	+ H2O	
B143.	HNO	+ CH2		= CH2O	+ HN	
B144.	HNO	+ CH2		= CH3	+ NO	
B145.	HNO	+ CH2		= CH3O	+ N	
B175.	HNO	+ CH2O		= CH3	+ NO2	
B176.	HNO	+ CH2O		= CH3O	+ NO	
B193.	HNO	+ CH3		= CH3O	+ HN	
B194.	HNO	+ CH3		= CH4	+ NO	
B209.	HNO	+ CH3O		= CH4	+ NO2	
D 51.	HNO	+ CN		= CH	+ N2O	
D 83.	HNO	+ CN		= CHN	+ NO	
D132.	HNO	+ CN		= CHO	+ N2	

REACTIONS OF HNO

D 45.	HNO	+ CO	=	CH	+ NO2
D 90.	HNO	+ CO	=	CHN	+ O2
D129.	HNO	+ CO	=	CHO	+ NO
D214.	HNO	+ CO	=	CN	+ HO2
B222.	HNO	+ CO	=	CO2	+ HN
D131.	HNO	+ CO2	=	CHO	+ NO2
B233.	HNO	+ H	=	HN	+ HO
B234.	HNO	+ H	=	H2	+ NO
B235.	HNO	+ H	=	H2O	+ N
B258.	HNO	+ HN	=	H2	+ N2O
B259.	HNO	+ HN	=	H2O	+ N2
A278.	HNO	+ HNO	=	H2O	+ N2O
C262.	HNO	+ HO	=	HN	+ HO2
A279.	HNO	+ HO	=	H2	+ NO2
A280.	HNO	+ HO	=	H2O	+ NO
A281.	HNO	+ HO2	=	H2O	+ NO2
C265.	HNO	+ H2	=	HN	+ H2O
C252.	HNO	+ N	=	H	+ N2O
C266.	HNO	+ N	=	HN	+ NO
A282.	HNO	+ N	=	HO	+ N2
C268.	HNO	+ NO	=	HN	+ NO2
A283.	HNO	+ NO	=	HO	+ N2O
A284.	HNO	+ NO	=	HO2	+ N2
A285.	HNO	+ NO2	=	HO2	+ N2O
C271.	HNO	+ N2	=	HN	+ N2O

REACTIONS OF HNO

C247.	HNO	+ O	=	H	+	NO2
C274.	HNO	+ O	=	HN	+	O2
A286.	HNO	+ O	=	HO	+	NO
A287.	HNO	+ O	=	HO2	+	N
A288.	HNO	+ O2	=	HO	+	NO2
A289.	HNO	+ O2	=	HO2	+	NO

REACTIONS OF HO

C254.	HO		+ M	=	H	+ O	+ M
B 20.	HO	+ CH		=	CHO*	+ H	
B 21.	HO	+ CH		=	CH2	+ O	
B 22.	HO	+ CH	+ M	=	CH2O		+ M
B 23.	HO	+ CH		=	CO	+ H2	
D 15.	HO	+ CHN		=	CH	+ HNO	
B 68.	HO	+ CHN		=	CHO	+ HN	
B 69.	HO	+ CHN		=	CH2	+ NO	
B 70.	HO	+ CHN		=	CH2O	+ N	
B 71.	HO	+ CHN		=	CN	+ H2O	
D 24.	HO	+ CHO		=	CH	+ HO2	
B112.	HO	+ CHO		=	CH2	+ O2	
B113.	HO	+ CHO		=	CH2O	+ O	
B114.	HO	+ CHO		=	CO	+ H2O	
B115.	HO	+ CHO		=	CO2	+ H2	
D 32.	HO	+ CH2		=	CH	+ H2O	
D118.	HO	+ CH2		=	CHO	+ H2	
B146.	HO	+ CH2		=	CH2O	+ H	
B147.	HO	+ CH2		=	CH3	+ O	
B148.	HO	+ CH2	+ M	=	CH3O		+ M
D123.	HO	+ CH2O		=	CHO	+ H2O	
D149.	HO	+ CH2O		=	CH2	+ HO2	
B177.	HO	+ CH2O		=	CH3	+ O2	
B178.	HO	+ CH2O		=	CH3O	+ O	
D155.	HO	+ CH3		=	CH2	+ H2O	

REACTIONS OF HO

D180.	HO	+	CH3		=	CH2O	+	H2
B195.	HO	+	CH3		=	CH3O	+	H
B196.	HO	+	CH3		=	CH4	+	O
D184.	HO	+	CH3O		=	CH2O	+	H2O
D197.	HO	+	CH3O		=	CH3	+	HO2
B210.	HO	+	CH3O		=	CH4	+	O2
D201.	HO	+	CH4		=	CH3	+	H2O
D211.	HO	+	CH4		=	CH3O	+	H2
D 40.	HO	+	CN		=	CH	+	NO
D 86.	HO	+	CN		=	CHN	+	O
D126.	HO	+	CN		=	CHO	+	N
B213.	HO	+	CN		=	CO	+	HN
D 55.	HO	+	CO		=	CH	+	O2
D133.	HO	+	CO		=	CHO	+	O
B223.	HO	+	CO		=	CO2	+	H
D136.	HO	+	CO2		=	CHO	+	O2
D224.	HO	+	CO2		=	CO	+	HO2
B236.	HO	+	H		=	H2	+	O
B237.	HO	+	H	+ M	=	H2O	+	M
D233.	HO	+	HN		=	H	+	HNO
B260.	HO	+	HN		=	H2	+	NO
B261.	HO	+	HN		=	H2O	+	N
D262.	HO	+	HNO		=	HN	+	HO2
B279.	HO	+	HNO		=	H2	+	NO2
B280.	HO	+	HNO		=	H2O	+	NO

REACTIONS OF HO

C238.	HO	+	HO		=	H	+	HO2
A290.	HO	+	HO		=	H2	+	O2
A291.	HO	+	HO		=	H2O	+	O
A292.	HO	+	HO2		=	H2O	+	O2
C241.	HO	+	H2		=	H	+	H2O
A293.	HO	+	H2O		=	HO2	+	H2
C245.	HO	+	N		=	H	+	NO
C273.	HO	+	N		=	HN	+	O
C277.	HO	+	N	+ M	=	HNO	+	M
C248.	HO	+	NO		=	H	+	NO2
C275.	HO	+	NO		=	HN	+	O2
C286.	HO	+	NO		=	HNO	+	O
A294.	HO	+	NO		=	HO2	+	N
C288.	HO	+	NO2		=	HNO	+	O2
A295.	HO	+	NO2		=	HO2	+	NO
C253.	HO	+	N2		=	H	+	N2O
C267.	HO	+	N2		=	HN	+	NO
C282.	HO	+	N2		=	HNO	+	N
C269.	HO	+	N2O		=	HN	+	NO2
C283.	HO	+	N2O		=	HNO	+	NO
A296.	HO	+	N2O		=	HO2	+	N2
C255.	HO	+	O		=	H	+	O2
A297.	HO	+	O	+ M	=	HO2	+	M
A298.	HO	+	O2		=	HO2	+	O

REACTIONS OF HO2

C256.	HO2		+ M	= H	+ O2	+ M
C297.	HO2		+ M	= HO	+ O	+ M
B 24.	HO2	+ CH		= CHO	+ HO	
B 25.	HO2	+ CH		= CH2	+ O2	
B 26.	HO2	+ CH		= CH2O	+ O	
B 27.	HO2	+ CH		= CO	+ H2O	
B 28.	HO2	+ CH		= CO2	+ H2	
B 72.	HO2	+ CHN		= CHO	+ HNO	
B 73.	HO2	+ CHN		= CH2	+ NO2	
B 74.	HO2	+ CHN		= CH2O	+ NO	
B116.	HO2	+ CHO		= CH2O	+ O2	
B117.	HO2	+ CHO		= CO2	+ H2O	
D122.	HO2	+ CH2		= CHO	+ H2O	
B149.	HO2	+ CH2		= CH2O	+ HO	
B150.	HO2	+ CH2		= CH3	+ O2	
B151.	HO2	+ CH2		= CH3O	+ O	
B179.	HO2	+ CH2O		= CH3O	+ O2	
D183.	HO2	+ CH3		= CH2O	+ H2O	
B197.	HO2	+ CH3		= CH3O	+ HO	
B198.	HO2	+ CH3		= CH4	+ O2	
D212.	HO2	+ CH4		= CH3O	+ H2O	
D 44.	HO2	+ CN		= CH	+ NO2	
D 89.	HO2	+ CN		= CHN	+ O2	
D128.	HO2	+ CN		= CHO	+ NO	
B214.	HO2	+ CN		= CO	+ HNO	

REACTIONS OF HO2

B215.	HO2	+ CN	=	CO2	+ HN
D135.	HO2	+ CO	=	CHO	+ O2
B224.	HO2	+ CO	=	CO2	+ HO
B238.	HO2	+ H	=	HO	+ HO
B239.	HO2	+ H	=	H2	+ O2
B240.	HO2	+ H	=	H2O	+ O
B262.	HO2	+ HN	=	HNO	+ HO
B263.	HO2	+ HN	=	H2	+ NO2
B264.	HO2	+ HN	=	H2O	+ NO
B281.	HO2	+ HNO	=	H2O	+ NO2
B292.	HO2	+ HO	=	H2O	+ O2
C293.	HO2	+ H2	=	HO	+ H2O
C249.	HO2	+ N	=	H	+ NO2
C276.	HO2	+ N	=	HN	+ O2
C287.	HO2	+ N	=	HNO	+ O
C294.	HO2	+ N	=	HO	+ NO
C289.	HO2	+ NO	=	HNO	+ O2
C295.	HO2	+ NO	=	HO	+ NO2
C270.	HO2	+ N2	=	HN	+ NO2
C284.	HO2	+ N2	=	HNO	+ NO
C296.	HO2	+ N2	=	HO	+ N2O
C285.	HO2	+ N2O	=	HNO	+ NO2
C298.	HO2	+ O	=	HO	+ O2

REACTIONS OF H2

C231.	H2		+ M	=	H	+ H	+ M
B 29.	H2	+ CH		=	CH2	+ H	
B 30.	H2	+ CH	+ M	=	CH3		+ M
B 75.	H2	+ CHN		=	CH2	+ HN	
B 76.	H2	+ CHN		=	CH3	+ N	
D 31.	H2	+ CHO		=	CH	+ H2O	
B118.	H2	+ CHO		=	CH2	+ HO	
B119.	H2	+ CHO		=	CH2O	+ H	
B120.	H2	+ CHO		=	CH3	+ O	
B121.	H2	+ CHO	+ M	=	CH3O		+ M
B152.	H2	+ CH2		=	CH3	+ H	
B153.	H2	+ CH2	+ M	=	CH4		+ M
D154.	H2	+ CH2O		=	CH2	+ H2O	
B180.	H2	+ CH2O		=	CH3	+ HO	
B181.	H2	+ CH2O		=	CH3O	+ H	
B182.	H2	+ CH2O		=	CH4	+ O	
B199.	H2	+ CH3		=	CH4	+ H	
D200.	H2	+ CH3O		=	CH3	+ H2O	
B211.	H2	+ CH3O		=	CH4	+ HO	
D 14.	H2	+ CN		=	CH	+ HN	
D 64.	H2	+ CN		=	CHN	+ H	
D159.	H2	+ CN		=	CH2	+ N	
D 23.	H2	+ CO		=	CH	+ HO	
D106.	H2	+ CO		=	CHO	+ H	
D164.	H2	+ CO		=	CH2	+ O	

REACTIONS OF H2

D168.	H2	+ CO	+ M	=	CH2O		+ M
D 28.	H2	+ CO2		=	CH	+ HO2	
D115.	H2	+ CO2		=	CHO	+ HO	
D167.	H2	+ CO2		=	CH2	+ O2	
D188.	H2	+ CO2		=	CH2O	+ O	
D225.	H2	+ CO2		=	CO	+ H2O	
D265.	H2	+ HNO		=	HN	+ H2O	
D241.	H2	+ HO		=	H	+ H2O	
D293.	H2	+ HO2		=	HO	+ H2O	
C232.	H2	+ N		=	H	+ HN	
C234.	H2	+ NO		=	H	+ HNO	
C260.	H2	+ NO		=	HN	+ HO	
A299.	H2	+ NO		=	H2O	+ N	
C263.	H2	+ NO2		=	HN	+ HO2	
C279.	H2	+ NO2		=	HNO	+ HO	
A300.	H2	+ NO2		=	H2O	+ NO	
C257.	H2	+ N2		=	HN	+ HN	
C258.	H2	+ N2O		=	HN	+ HNO	
A301.	H2	+ N2O		=	H2O	+ N2	
C236.	H2	+ O		=	H	+ HO	
A302.	H2	+ O	+ M	=	H2O		+ M
C239.	H2	+ O2		=	H	+ HO2	
C290.	H2	+ O2		=	HO	+ HO	
A303.	H2	+ O2		=	H2O	+ O	

REACTIONS OF H2O

C237.	H2O		+ M	=	H	+ HO	+ M
C302.	H2O		+ M	=	H2	+ O	+ M
B 31.	H2O	+ CH		=	CHO	+ H2	
B 32.	H2O	+ CH		=	CH2	+ HO	
B 33.	H2O	+ CH		=	CH2O	+ H	
B 34.	H2O	+ CH		=	CH3	+ O	
B 35.	H2O	+ CH	+ M	=	CH3O		+ M
B 77.	H2O	+ CHN		=	CH2	+ HNO	
B 78.	H2O	+ CHN		=	CH2O	+ HN	
B 79.	H2O	+ CHN		=	CH3	+ NO	
B 80.	H2O	+ CHN		=	CH3O	+ N	
B122.	H2O	+ CHO		=	CH2	+ HO2	
B123.	H2O	+ CHO		=	CH2O	+ HO	
B124.	H2O	+ CHO		=	CH3	+ O2	
B125.	H2O	+ CHO		=	CH3O	+ O	
B154.	H2O	+ CH2		=	CH2O	+ H2	
B155.	H2O	+ CH2		=	CH3	+ HO	
B156.	H2O	+ CH2		=	CH3O	+ H	
B157.	H2O	+ CH2		=	CH4	+ O	
B183.	H2O	+ CH2O		=	CH3	+ HO2	
B184.	H2O	+ CH2O		=	CH3O	+ HO	
B185.	H2O	+ CH2O		=	CH4	+ O2	
B200.	H2O	+ CH3		=	CH3O	+ H2	
B201.	H2O	+ CH3		=	CH4	+ HO	
B212.	H2O	+ CH3O		=	CH4	+ HO2	

REACTIONS OF H2O

D 19.	H2O	+ CN	=	CH	+	HNO
D 71.	H2O	+ CN	=	CHN	+	HO
D109.	H2O	+ CN	=	CHO	+	HN
D160.	H2O	+ CN	=	CH2	+	NO
D186.	H2O	+ CN	=	CH2O	+	N
D 27.	H2O	+ CO	=	CH	+	HO2
D114.	H2O	+ CO	=	CHO	+	HO
D166.	H2O	+ CO	=	CH2	+	O2
D187.	H2O	+ CO	=	CH2O	+	O
B225.	H2O	+ CO	=	CO2	+	H2
D117.	H2O	+ CO2	=	CHO	+	HO2
D189.	H2O	+ CO2	=	CH2O	+	O2
B241.	H2O	+ H	=	HO	+	H2
B265.	H2O	+ HN	=	HNO	+	H2
B293.	H2O	+ HO	=	HO2	+	H2
C235.	H2O	+ N	=	H	+	HNO
C261.	H2O	+ N	=	HN	+	HO
C299.	H2O	+ N	=	H2	+	NO
C264.	H2O	+ NO	=	HN	+	HO2
C280.	H2O	+ NO	=	HNO	+	HO
C300.	H2O	+ NO	=	H2	+	NO2
C281.	H2O	+ NO2	=	HNO	+	HO2
C259.	H2O	+ N2	=	HN	+	HNO
C301.	H2O	+ N2	=	H2	+	N2O
C278.	H2O	+ N2O	=	HNO	+	HNO

REACTIONS OF H2O

C240.	H2O	+ O	= H	+ HO2
C291.	H2O	+ O	= HO	+ HO
C303.	H2O	+ O	= H2	+ O2
C292.	H2O	+ O2	= HO	+ HO2

REACTIONS OF N

B 36.	N	+ CH	+ M	= CHN		+ M
B 37.	N	+ CH		= CN	+ H	
D 47.	N	+ CHN		= CH	+ N2	
B 81.	N	+ CHN		= CN	+ HN	
D 39.	N	+ CHO		= CH	+ NO	
D 85.	N	+ CHO		= CHN	+ O	
B126.	N	+ CHO		= CN	+ HO	
B127.	N	+ CHO		= CO	+ HN	
D 13.	N	+ CH2		= CH	+ HN	
D 63.	N	+ CH2		= CHN	+ H	
B158.	N	+ CH2		= CN	+ H2	
D 18.	N	+ CH2O		= CH	+ HNO	
D 70.	N	+ CH2O		= CHN	+ HO	
D108.	N	+ CH2O		= CHO	+ HN	
D159.	N	+ CH2O		= CH2	+ NO	
B186.	N	+ CH2O		= CN	+ H2O	
D 76.	N	+ CH3		= CHN	+ H2	
D142.	N	+ CH3		= CH2	+ HN	
D 80.	N	+ CH3O		= CHN	+ H2O	
D145.	N	+ CH3O		= CH2	+ HNO	
D174.	N	+ CH3O		= CH2O	+ HN	
D202.	N	+ CH3O		= CH3	+ NO	
D192.	N	+ CH4		= CH3	+ HN	
D219.	N	+ CO		= CN	+ O	
D221.	N	+ CO2		= CN	+ O2	

REACTIONS OF N

D226.	N	+	CO2		=	CO	+	NO
B242.	N	+	H	+ M	=	HN		+ M
D250.	N	+	HN		=	H	+	N2
D252.	N	+	HNO		=	H	+	N2O
D266.	N	+	HNO		=	HN	+	NO
B282.	N	+	HNO		=	HO	+	N2
D245.	N	+	HO		=	H	+	NO
D273.	N	+	HO		=	HN	+	O
D277.	N	+	HO	+ M	=	HNO		+ M
D249.	N	+	HO2		=	H	+	NO2
D276.	N	+	HO2		=	HN	+	O2
D287.	N	+	HO2		=	HNO	+	O
D294.	N	+	HO2		=	HO	+	NO
D232.	N	+	H2		=	H	+	HN
D235.	N	+	H2O		=	H	+	HNO
D261.	N	+	H2O		=	HN	+	HO
D299.	N	+	H2O		=	H2	+	NO
A304.	N	+	N	+ M	=	N2		+ M
A305.	N	+	NO		=	N2	+	O
A306.	N	+	NO	+ M	=	N2O		+ M
A307.	N	+	NO2		=	NO	+	NO
A308.	N	+	NO2		=	N2	+	O2
A309.	N	+	NO2		=	N2O	+	O
A310.	N	+	N2O		=	NO	+	N2
A311.	N	+	O	+ M	=	NO		+ M

REACTIONS OF N

A312. N + O2 = NO + O

A313. N + O2 + M = NO2 + M

REACTIONS OF NO

C311.	NO		+ M	=	N	+ O	+ M
B 38.	NO	+ CH		=	CHN	+ O	
B 39.	NO	+ CH		=	CHO	+ N	
B 40.	NO	+ CH		=	CN	+ HO	
B 41.	NO	+ CH		=	CO	+ HN	
D 49.	NO	+ CHN		=	CH	+ N2O	
B 82.	NO	+ CHN		=	CHO	+ N2	
B 83.	NO	+ CHN		=	CN	+ HNO	
D 43.	NO	+ CHO		=	CH	+ NO2	
D 88.	NO	+ CHO		=	CHN	+ O2	
B128.	NO	+ CHO		=	CN	+ HO2	
B129.	NO	+ CHO		=	CO	+ HNO	
B130.	NO	+ CHO		=	CO2	+ HN	
D 17.	NO	+ CH2		=	CH	+ HNO	
D 69.	NO	+ CH2		=	CHN	+ HO	
D107.	NO	+ CH2		=	CHO	+ HN	
B159.	NO	+ CH2		=	CH2O	+ N	
B160.	NO	+ CH2		=	CN	+ H2O	
D 74.	NO	+ CH2O		=	CHN	+ HO2	
D111.	NO	+ CH2O		=	CHO	+ HNO	
D161.	NO	+ CH2O		=	CH2	+ NO2	
D 79.	NO	+ CH3		=	CHN	+ H2O	
D144.	NO	+ CH3		=	CH2	+ HNO	
D173.	NO	+ CH3		=	CH2O	+ HN	
B202.	NO	+ CH3		=	CH3O	+ N	

REACTIONS OF NO

D176.	NO	+	CH3O		=	CH2O	+	HNO
D203.	NO	+	CH3O		=	CH3	+	NO2
D194.	NO	+	CH4		=	CH3	+	HNO
D208.	NO	+	CH4		=	CH3O	+	HN
B216.	NO	+	CN		=	CO	+	N2
D220.	NO	+	CO		=	CN	+	O2
B226.	NO	+	CO		=	CO2	+	N
D227.	NO	+	CO2		=	CO	+	NO2
B243.	NO	+	H		=	HN	+	O
B244.	NO	+	H	+ M	=	HNO	+	M
B245.	NO	+	H		=	HO	+	N
D251.	NO	+	HN		=	H	+	N2O
B266.	NO	+	HN		=	HNO	+	N
B267.	NO	+	HN		=	HO	+	N2
D268.	NO	+	HNO		=	HN	+	NO2
B283.	NO	+	HNO		=	HO	+	N2O
B284.	NO	+	HNO		=	HO2	+	N2
D248.	NO	+	HO		=	H	+	NO2
D275.	NO	+	HO		=	HN	+	O2
D286.	NO	+	HO		=	HNO	+	O
B294.	NO	+	HO		=	HO2	+	N
D289.	NO	+	HO2		=	HNO	+	O2
D295.	NO	+	HO2		=	HO	+	NO2
D234.	NO	+	H2		=	H	+	HNO
D260.	NO	+	H2		=	HN	+	HO

REACTIONS OF NO

B299.	NO	+	H2			=	H2O	+	N
D264.	NO	+	H2O			=	HN	+	HO2
D280.	NO	+	H2O			=	HNO	+	HO
D300.	NO	+	H2O			=	H2	+	NO2
B305.	NO	+	N			=	N2	+	O
B306.	NO	+	N	+	M	=	N2O		+ M
C307.	NO	+	NO			=	N	+	NO2
A314.	NO	+	NO			=	N2	+	O2
A315.	NO	+	NO			=	N2O	+	O
A316.	NO	+	NO2			=	N2O	+	O2
C310.	NO	+	N2			=	N	+	N2O
A317.	NO	+	N2O			=	NO2	+	N2
C312.	NO	+	O			=	N	+	O2
A318.	NO	+	O	+	M	=	NO2		+ M
A319.	NO	+	O2			=	NO2	+	O

REACTIONS OF NO2

C313.	NO2		+ M	= N	+ O2	+ M
C318.	NO2		+ M	= NO	+ O	+ M
B 42.	NO2	+ CH		= CHN	+ O2	
B 43.	NO2	+ CH		= CHO	+ NO	
B 44.	NO2	+ CH		= CN	+ HO2	
B 45.	NO2	+ CH		= CO	+ HNO	
B 46.	NO2	+ CH		= CO2	+ HN	
B 84.	NO2	+ CHN		= CHO	+ N2O	
B131.	NO2	+ CHO		= CO2	+ HNO	
D 73.	NO2	+ CH2		= CHN	+ HO2	
D110.	NO2	+ CH2		= CHO	+ HNO	
B161.	NO2	+ CH2		= CH2O	+ NO	
D175.	NO2	+ CH3		= CH2O	+ HNO	
B203.	NO2	+ CH3		= CH3O	+ NO	
D209.	NO2	+ CH4		= CH3O	+ HNO	
B217.	NO2	+ CN		= CO	+ N2O	
B218.	NO2	+ CN		= CO2	+ N2	
B227.	NO2	+ CO		= CO2	+ NO	
B246.	NO2	+ H		= HN	+ O2	
B247.	NO2	+ H		= HNO	+ O	
B248.	NO2	+ H		= HO	+ NO	
B249.	NO2	+ H		= HO2	+ N	
B268.	NO2	+ HN		= HNO	+ NO	
B269.	NO2	+ HN		= HO	+ N2O	
B270.	NO2	+ HN		= HO2	+ N2	

REACTIONS OF NO2

B285.	NO2	+ HNO	=	HO2	+	N2O
D288.	NO2	+ HO	=	HNO	+	O2
B295.	NO2	+ HO	=	HO2	+	NO
D263.	NO2	+ H2	=	HN	+	HO2
D279.	NO2	+ H2	=	HNO	+	HO
B300.	NO2	+ H2	=	H2O	+	NO
D281.	NO2	+ H2O	=	HNO	+	HO2
B307.	NO2	+ N	=	NO	+	NO
B308.	NO2	+ N	=	N2	+	O2
B309.	NO2	+ N	=	N2O	+	O
B316.	NO2	+ NO	=	N2O	+	O2
C317.	NO2	+ N2	=	NO	+	N2O
C319.	NO2	+ O	=	NO	+	O2

REACTIONS OF N2

C304.	N2		+ M	= N	+ N	+ M		
B 47.	N2	+ CH		= CHN	+ N			
B 48.	N2	+ CH		= CN	+ HN			
D 50.	N2	+ CHO		= CH	+ N2O			
D 82.	N2	+ CHO		= CHN	+ NO			
B132.	N2	+ CHO		= CN	+ HNO			
D 65.	N2	+ CH2		= CHN	+ HN			
D 67.	N2	+ CH2O		= CHN	+ HNO			
D162.	N2	+ CH2O		= CH2	+ N2O			
D204.	N2	+ CH3O		= CH3	+ N2O			
D216.	N2	+ CO		= CN	+ NO			
D218.	N2	+ CO2		= CN	+ NO2			
D228.	N2	+ CO2		= CO	+ N2O			
B250.	N2	+ H		= HN	+ N			
D271.	N2	+ HNO		= HN	+ N2O			
D253.	N2	+ HO		= H	+ N2O			
D267.	N2	+ HO		= HN	+ NO			
D282.	N2	+ HO		= HNO	+ N			
D270.	N2	+ HO2		= HN	+ NO2			
D284.	N2	+ HO2		= HNO	+ NO			
D296.	N2	+ HO2		= HO	+ N2O			
D257.	N2	+ H2		= HN	+ HN			
D259.	N2	+ H2O		= HN	+ HNO			
D301.	N2	+ H2O		= H2	+ N2O			
D310.	N2	+ NO		= N	+ N2O			

REACTIONS OF N2

D317.	N2	+	NO2		=	NO	+	N2O
C305.	N2	+	O		=	N	+	NO
A320.	N2	+	O	+ M	=	N2O		+ M
C308.	N2	+	O2		=	N	+	NO2
C314.	N2	+	O2		=	NO	+	NO
A321.	N2	+	O2		=	N2O	+	O

REACTIONS OF N2O

C306.	N2O		+ M	= N	+ NO	+ M		
C320.	N2O		+ M	= N2	+ O	+ M		
B 49.	N2O	+ CH		= CHN	+ NO			
B 50.	N2O	+ CH		= CHO	+ N2			
B 51.	N2O	+ CH		= CN	+ HNO			
D 84.	N2O	+ CHO		= CHN	+ NO2			
D 66.	N2O	+ CH2		= CHN	+ HNO			
B162.	N2O	+ CH2		= CH2O	+ N2			
B204.	N2O	+ CH3		= CH3O	+ N2			
D217.	N2O	+ CO		= CN	+ NO2			
B228.	N2O	+ CO		= CO2	+ N2			
B251.	N2O	+ H		= HN	+ NO			
B252.	N2O	+ H		= HNO	+ N			
B253.	N2O	+ H		= HO	+ N2			
B271.	N2O	+ HN		= HNO	+ N2			
D269.	N2O	+ HO		= HN	+ NO2			
D283.	N2O	+ HO		= HNO	+ NO			
B296.	N2O	+ HO		= HO2	+ N2			
D285.	N2O	+ HO2		= HNO	+ NO2			
D258.	N2O	+ H2		= HN	+ HNO			
B301.	N2O	+ H2		= H2O	+ N2			
D278.	N2O	+ H2O		= HNO	+ HNO			
B310.	N2O	+ N		= NO	+ N2			
B317.	N2O	+ NO		= NO2	+ N2			
C309.	N2O	+ O		= N	+ NO2			

REACTIONS OF N2O

C315. N2O + O = NO + NO

C321. N2O + O = N2 + O2

C316. N2O + O2 = NO + NO2

REACTIONS OF O

B 52.	O	+	CH	+ M	=	CHO	+ M	
B 53.	O	+	CH		=	CO	+	H
D 38.	O	+	CHN		=	CH	+	NO
B 85.	O	+	CHN		=	CHO	+	N
B 86.	O	+	CHN		=	CN	+	HO
B 87.	O	+	CHN		=	CO	+	HN
D 54.	O	+	CHO		=	CH	+	O2
B133.	O	+	CHO		=	CO	+	HO
B134.	O	+	CHO		=	CO2	+	H
D 21.	O	+	CH2		=	CH	+	HO
D104.	O	+	CH2		=	CHO	+	H
B163.	O	+	CH2	+ M	=	CH2O	+ M	
B164.	O	+	CH2		=	CO	+	H2
D 26.	O	+	CH2O		=	CH	+	HO2
D113.	O	+	CH2O		=	CHO	+	HO
D165.	O	+	CH2O		=	CH2	+	O2
B187.	O	+	CH2O		=	CO	+	H2O
B188.	O	+	CH2O		=	CO2	+	H2
D 34.	O	+	CH3		=	CH	+	H2O
D120.	O	+	CH3		=	CHO	+	H2
D147.	O	+	CH3		=	CH2	+	HO
D171.	O	+	CH3		=	CH2O	+	H
B205.	O	+	CH3	+ M	=	CH3O	+ M	
D125.	O	+	CH3O		=	CHO	+	H2O
D151.	O	+	CH3O		=	CH2	+	HO2

REACTIONS OF O

D178.	O	+	CH3O		=	CH2O	+	HO	
D206.	O	+	CH3O		=	CH3	+	O2	
D157.	O	+	CH4		=	CH2	+	H2O	
D182.	O	+	CH4		=	CH2O	+	H2	
D196.	O	+	CH4		=	CH3	+	HO	
D207.	O	+	CH4		=	CH3O	+	H	
B219.	O	+	CN		=	CO	+	N	
B229.	O	+	CO	+ M	=	CO2			+ M
D230.	O	+	CO2		=	CO	+	O2	
B254.	O	+	H	+ M	=	HO			+ M
D243.	O	+	HN		=	H	+	NO	
B272.	O	+	HN	+ M	=	HNO			+ M
B273.	O	+	HN		=	HO	+	N	
D247.	O	+	HNO		=	H	+	NO2	
D274.	O	+	HNO		=	HN	+	O2	
B286.	O	+	HNO		=	HO	+	NO	
B287.	O	+	HNO		=	HO2	+	N	
D255.	O	+	HO		=	H	+	O2	
B297.	O	+	HO	+ M	=	HO2			+ M
D298.	O	+	HO2		=	HO	+	O2	
D236.	O	+	H2		=	H	+	HO	
B302.	O	+	H2	+ M	=	H2O			+ M
D240.	O	+	H2O		=	H	+	HO2	
D291.	O	+	H2O		=	HO	+	HO	
D303.	O	+	H2O		=	H2	+	O2	

REACTIONS OF O

B311.	O	+ N	+ M	= NO			+ M
D312.	O	+ NO		= N	+ O2		
B318.	O	+ NO	+ M	= NO2			+ M
D319.	O	+ NO2		= NO	+ O2		
D305.	O	+ N2		= N	+ NO		
B320.	O	+ N2	+ M	= N2O			+ M
D309.	O	+ N2O		= N	+ NO2		
D315.	O	+ N2O		= NO	+ NO		
D321.	O	+ N2O		= N2	+ O2		
A322.	O	+ O	+ M	= O2			+ M

REACTIONS OF O2

C322.	O2		+ M	= O	+ O	+ M		
B 54.	O2	+ CH		= CHO	+ O			
B 55.	O2	+ CH		= CO	+ HO			
B 56.	O2	+ CH		= CO2	+ H			
D 42.	O2	+ CHN		= CH	+ NO2			
B 88.	O2	+ CHN		= CHO	+ NO			
B 89.	O2	+ CHN		= CN	+ HO2			
B 90.	O2	+ CHN		= CO	+ HNO			
B 91.	O2	+ CHN		= CO2	+ HN			
B135.	O2	+ CHO		= CO	+ HO2			
B136.	O2	+ CHO		= CO2	+ HO			
D 25.	O2	+ CH2		= CH	+ HO2			
D112.	O2	+ CH2		= CHO	+ HO			
B165.	O2	+ CH2		= CH2O	+ O			
B166.	O2	+ CH2		= CO	+ H2O			
B167.	O2	+ CH2		= CO2	+ H2			
D116.	O2	+ CH2O		= CHO	+ HO2			
B189.	O2	+ CH2O		= CO2	+ H2O			
D124.	O2	+ CH3		= CHO	+ H2O			
D150.	O2	+ CH3		= CH2	+ HO2			
D177.	O2	+ CH3		= CH2O	+ HO			
B206.	O2	+ CH3		= CH3O	+ O			
D179.	O2	+ CH3O		= CH2O	+ HO2			
D185.	O2	+ CH4		= CH2O	+ H2O			
D198.	O2	+ CH4		= CH3	+ HO2			

REACTIONS OF O2

D210.	O2	+ CH4			= CH3O	+ HO		
B220.	O2	+ CN			= CO	+ NO		
B221.	O2	+ CN			= CO2	+ N		
B230.	O2	+ CO			= CO2	+ O		
B255.	O2	+ H			= HO	+ O		
B256.	O2	+ H	+ M		= HO2		+ M	
D246.	O2	+ HN			= H	+ NO2		
B274.	O2	+ HN			= HNO	+ O		
B275.	O2	+ HN			= HO	+ NO		
B276.	O2	+ HN			= HO2	+ N		
B288.	O2	+ HNO			= HO	+ NO2		
B289.	O2	+ HNO			= HO2	+ NO		
B298.	O2	+ HO			= HO2	+ O		
D239.	O2	+ H2			= H	+ HO2		
D290.	O2	+ H2			= HO	+ HO		
B303.	O2	+ H2			= H2O	+ O		
D292.	O2	+ H2O			= HO	+ HO2		
B312.	O2	+ N			= NO	+ O		
B313.	O2	+ N	+ M		= NO2		+ M	
B319.	O2	+ NO			= NO2	+ O		
D308.	O2	+ N2			= N	+ NO2		
D314.	O2	+ N2			= NO	+ NO		
B321.	O2	+ N2			= N2O	+ O		
D316.	O2	+ N2O			= NO	+ NO2		

APPENDIX C

MASTER LIST OF REACTIONS FOR 39 SPECIES

As an indication of the increasing complexity of the reaction system as additional species are added, 39 species of potential importance for methane-air were used to compile this reaction listing. These include species containing up to two carbon atoms and as such provide an indication of reactions under more fuel rich conditions or a preliminary indication of reactions for higher hydrocarbons. Nitrogen bonded species with NH bonds up to NH_3 and CN bonds including CNO provide an indication for fuel nitrogen reactions. However, while the 25 species resulted in 322 reactions, the 39 species result in 1078 reactions.

The 39 species covered in this Appendix are:

C	C_2	H_2N
CH	C_2H	H_2O
CHN	C_2H_2	H_2O_2
CHO	C_2H_3	H_3N
CH_2	C_2H_4	N
CH_2O	C_2H_5	NO
CH_3	C_2H_6	NO_2
CH_3O	H	NO_3
CH_4	NH	N_2
CN	HNO	N_2O
CNO	HO	O
CO	HO_2	O_2
CO_2	H_2	O_3

```
Z    1.  C    + C     + M     = C2            + M
Z    2.  C    + CH            = C2    + H
Z    3.  C    + CH    + M     = C2H           + M
Z    4.  C    + CHN           = CH    + CN
Z    5.  C    + CHN           = C2    + HN
Z    6.  C    + CHN           = C2H   + N
Z    7.  C    + CHO           = CH    + CO
Z    8.  C    + CHO           = C2    + HO
Z    9.  C    + CHO           = C2H   + O
Z   10.  C    + CH2           = CH    + CH
Z   11.  C    + CH2           = C2    + H2
Z   12.  C    + CH2           = C2H   + H
Z   13.  C    + CH2   + M     = C2H2          + M
Z   14.  C    + CH2O          = CH    + CHO
Z   15.  C    + CH2O          = CH2   + CO
Z   16.  C    + CH2O          = C2    + H2O
Z   17.  C    + CH2O          = C2H   + HO
Z   18.  C    + CH2O          = C2H2  + O
Z   19.  C    + CH3           = CH    + CH2
Z   20.  C    + CH3           = C2H   + H2
Z   21.  C    + CH3           = C2H2  + H
Z   22.  C    + CH3   + M     = C2H3          + M
Z   23.  C    + CH3O          = CH    + CH2O
Z   24.  C    + CH3O          = CHO   + CH2
Z   25.  C    + CH3O          = CH3   + CO
Z   26.  C    + CH3O          = C2H   + H2O
Z   27.  C    + CH3O          = C2H2  + HO
Z   28.  C    + CH3O          = C2H3  + O
Z   29.  C    + CH4           = CH    + CH3
Z   30.  C    + CH4           = CH2   + CH2
Z   31.  C    + CH4           = C2H2  + H2
Z   32.  C    + CH4           = C2H3  + H
Z   33.  C    + CH4   + M     = C2H4          + M
Z   34.  C    + CN            = C2    + N
Z   35.  C    + CNO           = CN    + CO
Z   36.  C    + CNO           = C2    + NO
Z   37.  C    + CO            = C2    + O
Z   38.  C    + CO2           = CO    + CO
Z   39.  C    + CO2           = C2    + O2
Z   40.  C    + C2H           = CH    + C2
Z   41.  C    + C2H2          = CH    + C2H
Z   42.  C    + C2H2          = CH2   + C2
Z   43.  C    + C2H3          = CH    + C2H2
Z   44.  C    + C2H3          = CH2   + C2H
Z   45.  C    + C2H3          = CH3   + C2
Z   46.  C    + C2H4          = CH    + C2H3
Z   47.  C    + C2H4          = CH2   + C2H2
Z   48.  C    + C2H4          = CH3   + C2H
Z   49.  C    + C2H4          = CH4   + C2
Z   50.  C    + C2H5          = CH    + C2H4
```

```
Z   51.  C    + C2H5          = CH2  + C2H3
Z   52.  C    + C2H5          = CH3  + C2H2
Z   53.  C    + C2H5          = CH4  + C2H
Z   54.  C    + C2H6          = CH   + C2H5
Z   55.  C    + C2H6          = CH2  + C2H4
Z   56.  C    + C2H6          = CH3  + C2H3
Z   57.  C    + C2H6          = CH4  + C2H2
Z   58.  C    + H     + M     = CH           + M
Z   59.  C    + HN            = CH   + N
Z   60.  C    + HN    + M     = CHN          + M
Z   61.  C    + HN            = CN   + H
Z   62.  C    + HNO           = CH   + NO
Z   63.  C    + HNO           = CHN  + O
Z   64.  C    + HNO           = CHO  + N
Z   65.  C    + HNO           = CN   + HO
Z   66.  C    + HNO           = CNO  + H
Z   67.  C    + HNO           = CO   + HN
Z   68.  C    + HO            = CH   + O
Z   69.  C    + HO    + M     = CHO          + M
Z   70.  C    + HO            = CO   + H
Z   71.  C    + HO2           = CH   + O2
Z   72.  C    + HO2           = CHO  + O
Z   73.  C    + HO2           = CO   + HO
Z   74.  C    + HO2           = CO2  + H
Z   75.  C    + H2            = CH   + H
Z   76.  C    + H2    + M     = CH2          + M
Z   77.  C    + H2N           = CH   + HN
Z   78.  C    + H2N           = CHN  + H
Z   79.  C    + H2N           = CH2  + N
Z   80.  C    + H2N           = CN   + H2
Z   81.  C    + H2O           = CH   + HO
Z   82.  C    + H2O           = CHO  + H
Z   83.  C    + H2O           = CH2  + O
Z   84.  C    + H2O   + M     = CH2O         + M
Z   85.  C    + H2O           = CO   + H2
Z   86.  C    + H2O2          = CH   + HO2
Z   87.  C    + H2O2          = CHO  + HO
Z   88.  C    + H2O2          = CH2  + O2
Z   89.  C    + H2O2          = CH2O + O
Z   90.  C    + H2O2          = CO   + H2O
Z   91.  C    + H2O2          = CO2  + H2
Z   92.  C    + H3N           = CH   + H2N
Z   93.  C    + H3N           = CHN  + H2
Z   94.  C    + H3N           = CH2  + HN
Z   95.  C    + H3N           = CH3  + N
Z   96.  C    + N     + M     = CN           + M
Z   97.  C    + NO            = CN   + O
Z   98.  C    + NO    + M     = CNO          + M
Z   99.  C    + NO            = CO   + N
Z  100.  C    + NO2           = CN   + O2
```

```
Z 101.  C    + NO2          = CNO  + O
Z 102.  C    + NO2          = CO   + NO
Z 103.  C    + NO2          = CO2  + N
Z 104.  C    + NO3          = CN   + O3
Z 105.  C    + NO3          = CNO  + O2
Z 106.  C    + NO3          = CO   + NO2
Z 107.  C    + NO3          = CO2  + NO
Z 108.  C    + N2           = CN   + N
Z 109.  C    + N2O          = CN   + NO
Z 110.  C    + N2O          = CNO  + N
Z 111.  C    + N2O          = CO   + N2
Z 112.  C    + O    + M     = CO          + M
Z 113.  C    + O2           = CO   + O
Z 114.  C    + O2   + M     = CO2         + M
Z 115.  C    + O3           = CO   + O2
Z 116.  C    + O3           = CO2  + O
Z 117.  CH   + CH           = C2   + H2
Z 118.  CH   + CH           = C2H  + H
Z 119.  CH   + CH   + M     = C2H2        + M
Z 120.  CH   + CHN          = CH2  + CN
Z 121.  CH   + CHN          = C2   + H2N
Z 122.  CH   + CHN          = C2H  + HN
Z 123.  CH   + CHN          = C2H2 + N
Z 124.  CH   + CHO          = CH2  + CO
Z 125.  CH   + CHO          = C2   + H2O
Z 126.  CH   + CHO          = C2H  + HO
Z 127.  CH   + CHO          = C2H2 + O
Z 128.  CH   + CH2          = C2H  + H2
Z 129.  CH   + CH2          = C2H2 + H
Z 130.  CH   + CH2  + M     = C2H3        + M
Z 131.  CH   + CH2O         = CHO  + CH2
Z 132.  CH   + CH2O         = CH3  + CO
Z 133.  CH   + CH2O         = C2H  + H2O
Z 134.  CH   + CH2O         = C2H2 + HO
Z 135.  CH   + CH2O         = C2H3 + O
Z 136.  CH   + CH3          = CH2  + CH2
Z 137.  CH   + CH3          = C2H2 + H2
Z 138.  CH   + CH3          = C2H3 + H
Z 139.  CH   + CH3  + M     = C2H4        + M
Z 140.  CH   + CH3O         = CHO  + CH3
Z 141.  CH   + CH3O         = CH2  + CH2O
Z 142.  CH   + CH3O         = CH4  + CO
Z 143.  CH   + CH3O         = C2H2 + H2O
Z 144.  CH   + CH3O         = C2H3 + HO
Z 145.  CH   + CH3O         = C2H4 + O
Z 146.  CH   + CH4          = CH2  + CH3
Z 147.  CH   + CH4          = C2H3 + H2
Z 148.  CH   + CH4          = C2H4 + H
Z 149.  CH   + CH4  + M     = C2H5        + M
Z 150.  CH   + CN           = C2   + HN
```

```
Z 151.   CH    + CN              = C2H   + N
Z 152.   CH    + CNO             = CHN   + CO
Z 153.   CH    + CNO             = CHO   + CN
Z 154.   CH    + CNO             = C2    + HNO
Z 155.   CH    + CNO             = C2H   + NO
Z 156.   CH    + CO              = C2    + HO
Z 157.   CH    + CO              = C2H   + O
Z 158.   CH    + CO2             = CHO   + CO
Z 159.   CH    + CO2             = C2    + HO2
Z 160.   CH    + CO2             = C2H   + O2
Z 161.   CH    + C2H             = CH2   + C2
Z 162.   CH    + C2H2            = CH2   + C2H
Z 163.   CH    + C2H2            = CH3   + C2
Z 164.   CH    + C2H3            = CH2   + C2H2
Z 165.   CH    + C2H3            = CH3   + C2H
Z 166.   CH    + C2H3            = CH4   + C2
Z 167.   CH    + C2H4            = CH2   + C2H3
Z 168.   CH    + C2H4            = CH3   + C2H2
Z 169.   CH    + C2H4            = CH4   + C2H
Z 170.   CH    + C2H5            = CH2   + C2H4
Z 171.   CH    + C2H5            = CH3   + C2H3
Z 172.   CH    + C2H5            = CH4   + C2H2
Z 173.   CH    + C2H6            = CH2   + C2H5
Z 174.   CH    + C2H6            = CH3   + C2H4
Z 175.   CH    + C2H6            = CH4   + C2H3
Z 176.   CH    + H       + M     = CH2           + M
Z 177.   CH    + HN              = CHN   + H
Z 178.   CH    + HN              = CH2   + N
Z 179.   CH    + HN              = CN    + H2
Z 180.   CH    + HNO             = CHN   + HO
Z 181.   CH    + HNO             = CHO   + HN
Z 182.   CH    + HNO             = CH2   + NO
Z 183.   CH    + HNO             = CH2O  + N
Z 184.   CH    + HNO             = CN    + H2O
Z 185.   CH    + HNO             = CNO   + H2
Z 186.   CH    + HNO             = CO    + H2N
Z 187.   CH    + HO              = CHO   + H
Z 188.   CH    + HO              = CH2   + O
Z 189.   CH    + HO      + M     = CH2O          + M
Z 190.   CH    + HO              = CO    + H2
Z 191.   CH    + HO2             = CHO   + HO
Z 192.   CH    + HO2             = CH2   + O2
Z 193.   CH    + HO2             = CH2O  + O
Z 194.   CH    + HO2             = CO    + H2O
Z 195.   CH    + HO2             = CO2   + H2
Z 196.   CH    + H2              = CH2   + H
Z 197.   CH    + H2      + M     = CH3           + M
Z 198.   CH    + H2N             = CHN   + H2
Z 199.   CH    + H2N             = CH2   + HN
Z 200.   CH    + H2N             = CH3   + N
```

```
Z 201.  CH    + H2O          = CHO   + H2
Z 202.  CH    + H2O          = CH2   + HO
Z 203.  CH    + H2O          = CH2O  + H
Z 204.  CH    + H2O          = CH3   + O
Z 205.  CH    + H2O    + M   = CH3O          + M
Z 206.  CH    + H2O2         = CHO   + H2O
Z 207.  CH    + H2O2         = CH2   + HO2
Z 208.  CH    + H2O2         = CH2O  + HO
Z 209.  CH    + H2O2         = CH3   + O2
Z 210.  CH    + H2O2         = CH3O  + O
Z 211.  CH    + H3N          = CH2   + H2N
Z 212.  CH    + H3N          = CH3   + HN
Z 213.  CH    + H3N          = CH4   + N
Z 214.  CH    + N      + M   = CHN           + M
Z 215.  CH    + N            = CN    + H
Z 216.  CH    + NO           = CHN   + O
Z 217.  CH    + NO           = CHO   + N
Z 218.  CH    + NO           = CN    + HO
Z 219.  CH    + NO           = CNO   + H
Z 220.  CH    + NO           = CO    + HN
Z 221.  CH    + NO2          = CHN   + O2
Z 222.  CH    + NO2          = CHO   + NO
Z 223.  CH    + NO2          = CN    + HO2
Z 224.  CH    + NO2          = CNO   + HO
Z 225.  CH    + NO2          = CO    + HNO
Z 226.  CH    + NO2          = CO2   + HN
Z 227.  CH    + NO3          = CHN   + O3
Z 228.  CH    + NO3          = CHO   + NO2
Z 229.  CH    + NO3          = CNO   + HO2
Z 230.  CH    + NO3          = CO2   + HNO
Z 231.  CH    + N2           = CHN   + N
Z 232.  CH    + N2           = CN    + HN
Z 233.  CH    + N2O          = CHN   + NO
Z 234.  CH    + N2O          = CHO   + N2
Z 235.  CH    + N2O          = CN    + HNO
Z 236.  CH    + N2O          = CNO   + HN
Z 237.  CH    + O      + M   = CHO           + M
Z 238.  CH    + O            = CO    + H
Z 239.  CH    + O2           = CHO   + O
Z 240.  CH    + O2           = CO    + HO
Z 241.  CH    + O2           = CO2   + H
Z 242.  CH    + O3           = CHO   + O2
Z 243.  CH    + O3           = CO    + HO2
Z 244.  CH    + O3           = CO2   + HO
Z 245.  CHN           + M    = CN    + H     + M
Z 246.  CHN   + CHN          = C2H2  + N2
Z 247.  CHN   + CHO          = CH2   + CNO
Z 248.  CHN   + CHO          = CH2O  + CN
Z 249.  CHN   + CHO          = C2H   + HNO
Z 250.  CHN   + CHO          = C2H2  + NO
```

Z	251.	CHN	+ CH2	= CH3	+ CN
Z	252.	CHN	+ CH2	= C2	+ H3N
Z	253.	CHN	+ CH2	= C2H	+ H2N
Z	254.	CHN	+ CH2	= C2H2	+ HN
Z	255.	CHN	+ CH2	= C2H3	+ N
Z	256.	CHN	+ CH2O	= CH3	+ CNO
Z	257.	CHN	+ CH2O	= CH3O	+ CN
Z	258.	CHN	+ CH2O	= C2H2	+ HNO
Z	259.	CHN	+ CH2O	= C2H3	+ NO
Z	260.	CHN	+ CH3	= CH4	+ CN
Z	261.	CHN	+ CH3	= C2H	+ H3N
Z	262.	CHN	+ CH3	= C2H2	+ H2N
Z	263.	CHN	+ CH3	= C2H3	+ HN
Z	264.	CHN	+ CH3	= C2H4	+ N
Z	265.	CHN	+ CH3O	= CH4	+ CNO
Z	266.	CHN	+ CH3O	= C2H3	+ HNO
Z	267.	CHN	+ CH3O	= C2H4	+ NO
Z	268.	CHN	+ CH4	= C2H2	+ H3N
Z	269.	CHN	+ CH4	= C2H3	+ H2N
Z	270.	CHN	+ CH4	= C2H4	+ HN
Z	271.	CHN	+ CH4	= C2H5	+ N
Z	272.	CHN	+ CN	= C2H	+ N2
Z	273.	CHN	+ CNO	= C2H	+ N2O
Z	274.	CHN	+ CO	= CHO	+ CN
Z	275.	CHN	+ CO	= C2	+ HNO
Z	276.	CHN	+ CO	= C2H	+ NO
Z	277.	CHN	+ CO2	= CHO	+ CNO
Z	278.	CHN	+ CO2	= C2H	+ NO2
Z	279.	CHN	+ C2	= CN	+ C2H
Z	280.	CHN	+ C2H	= CN	+ C2H2
Z	281.	CHN	+ C2H2	= CN	+ C2H3
Z	282.	CHN	+ C2H3	= CN	+ C2H4
Z	283.	CHN	+ C2H4	= CN	+ C2H5
Z	284.	CHN	+ C2H5	= CN	+ C2H6
Z	285.	CHN	+ H	= CH2	+ N
Z	286.	CHN	+ H	= CN	+ H2
Z	287.	CHN	+ HN	= CH2	+ N2
Z	288.	CHN	+ HN	= CN	+ H2N
Z	289.	CHN	+ HNO	= CH2	+ N2O
Z	290.	CHN	+ HNO	= CH2O	+ N2
Z	291.	CHN	+ HNO	= CNO	+ H2N
Z	292.	CHN	+ HO	= CHO	+ HN
Z	293.	CHN	+ HO	= CH2	+ NO
Z	294.	CHN	+ HO	= CH2O	+ N
Z	295.	CHN	+ HO	= CN	+ H2O
Z	296.	CHN	+ HO	= CNO	+ H2
Z	297.	CHN	+ HO	= CO	+ H2N
Z	298.	CHN	+ HO2	= CHO	+ HNO
Z	299.	CHN	+ HO2	= CH2	+ NO2
Z	300.	CHN	+ HO2	= CH2O	+ NO

```
Z 301.  CHN  + HO2          = CN   + H2O2
Z 302.  CHN  + HO2          = CNO  + H2O
Z 303.  CHN  + HO2          = CO2  + H2N
Z 304.  CHN  + H2           = CH2  + HN
Z 305.  CHN  + H2           = CH3  + N
Z 306.  CHN  + H2N          = CH3  + N2
Z 307.  CHN  + H2N          = CN   + H3N
Z 308.  CHN  + H2O          = CHO  + H2N
Z 309.  CHN  + H2O          = CH2  + HNO
Z 310.  CHN  + H2O          = CH2O + HN
Z 311.  CHN  + H2O          = CH3  + NO
Z 312.  CHN  + H2O          = CH3O + N
Z 313.  CHN  + H2O          = CO   + H3N
Z 314.  CHN  + H2O2         = CH2O + HNO
Z 315.  CHN  + H2O2         = CH3  + NO2
Z 316.  CHN  + H2O2         = CH3O + NO
Z 317.  CHN  + H2O2         = CO2  + H3N
Z 318.  CHN  + H3N          = CH4  + N2
Z 319.  CHN  + N            = CN   + HN
Z 320.  CHN  + NO           = CHO  + N2
Z 321.  CHN  + NO           = CN   + HNO
Z 322.  CHN  + NO           = CNO  + HN
Z 323.  CHN  + NO2          = CHO  + N2O
Z 324.  CHN  + NO2          = CNO  + HNO
Z 325.  CHN  + O            = CHO  + N
Z 326.  CHN  + O            = CN   + HO
Z 327.  CHN  + O            = CNO  + H
Z 328.  CHN  + O            = CO   + HN
Z 329.  CHN  + O2           = CHO  + NO
Z 330.  CHN  + O2           = CN   + HO2
Z 331.  CHN  + O2           = CNO  + HO
Z 332.  CHN  + O2           = CO   + HNO
Z 333.  CHN  + O2           = CO2  + HN
Z 334.  CHN  + O3           = CHO  + NO2
Z 335.  CHN  + O3           = CNO  + HO2
Z 336.  CHN  + O3           = CO2  + HNO
Z 337.  CHO          + M    = CO   + H     + M
Z 338.  CHO  + CHO          = CH2  + CO2
Z 339.  CHO  + CHO          = CH2O + CO
Z 340.  CHO  + CHO          = C2   + H2O2
Z 341.  CHO  + CHO          = C2H  + HO2
Z 342.  CHO  + CHO          = C2H2 + O2
Z 343.  CHO  + CH2          = CH3  + CO
Z 344.  CHO  + CH2          = C2H  + H2O
Z 345.  CHO  + CH2          = C2H2 + HO
Z 346.  CHO  + CH2          = C2H3 + O
Z 347.  CHO  + CH2O         = CH3  + CO2
Z 348.  CHO  + CH2O         = CH3O + CO
Z 349.  CHO  + CH2O         = C2H  + H2O2
Z 350.  CHO  + CH2O         = C2H2 + HO2
```

```
Z 351.  CHO  + CH2O          = C2H3 + O2
Z 352.  CHO  + CH3           = CH2  + CH2O
Z 353.  CHO  + CH3           = CH4  + CO
Z 354.  CHO  + CH3           = C2H2 + H2O
Z 355.  CHO  + CH3           = C2H3 + HO
Z 356.  CHO  + CH3           = C2H4 + O
Z 357.  CHO  + CH3O          = CH2O + CH2O
Z 358.  CHO  + CH3O          = CH4  + CO2
Z 359.  CHO  + CH3O          = C2H2 + H2O2
Z 360.  CHO  + CH3O          = C2H3 + HO2
Z 361.  CHO  + CH3O          = C2H4 + O2
Z 362.  CHO  + CH4           = CH2  + CH3O
Z 363.  CHO  + CH4           = CH2O + CH3
Z 364.  CHO  + CH4           = C2H3 + H2O
Z 365.  CHO  + CH4           = C2H4 + HO
Z 366.  CHO  + CH4           = C2H5 + O
Z 367.  CHO  + CN            = C2   + HNO
Z 368.  CHO  + CN            = C2H  + NO
Z 369.  CHO  + CNO           = C2H  + NO2
Z 370.  CHO  + CO            = C2   + HO2
Z 371.  CHO  + CO            = C2H  + O2
Z 372.  CHO  + CO2           = C2H  + O3
Z 373.  CHO  + C2            = CO   + C2H
Z 374.  CHO  + C2H           = CH2O + C2
Z 375.  CHO  + C2H           = CO   + C2H2
Z 376.  CHO  + C2H2          = CH2O + C2H
Z 377.  CHO  + C2H2          = CH3O + C2
Z 378.  CHO  + C2H2          = CO   + C2H3
Z 379.  CHO  + C2H3          = CH2O + C2H2
Z 380.  CHO  + C2H3          = CH3O + C2H
Z 381.  CHO  + C2H3          = CO   + C2H4
Z 382.  CHO  + C2H4          = CH2O + C2H3
Z 383.  CHO  + C2H4          = CH3O + C2H2
Z 384.  CHO  + C2H4          = CO   + C2H5
Z 385.  CHO  + C2H5          = CH2O + C2H4
Z 386.  CHO  + C2H5          = CH3O + C2H3
Z 387.  CHO  + C2H5          = CO   + C2H6
Z 388.  CHO  + C2H6          = CH2O + C2H5
Z 389.  CHO  + C2H6          = CH3O + C2H4
Z 390.  CHO  + H             = CH2  + O
Z 391.  CHO  + H      + M    = CH2O        + M
Z 392.  CHO  + H             = CO   + H2
Z 393.  CHO  + HN            = CH2  + NO
Z 394.  CHO  + HN            = CH2O + N
Z 395.  CHO  + HN            = CN   + H2O
Z 396.  CHO  + HN            = CNO  + H2
Z 397.  CHO  + HN            = CO   + H2N
Z 398.  CHO  + HNO           = CH2  + NO2
Z 399.  CHO  + HNO           = CH2O + NO
Z 400.  CHO  + HNO           = CN   + H2O2
```

```
Z 401.  CHO  + HNO          = CNO  + H2O
Z 402.  CHO  + HNO          = CO2  + H2N
Z 403.  CHO  + HO           = CH2  + O2
Z 404.  CHO  + HO           = CH2O + O
Z 405.  CHO  + HO           = CO   + H2O
Z 406.  CHO  + HO           = CO2  + H2
Z 407.  CHO  + HO2          = CH2  + O3
Z 408.  CHO  + HO2          = CH2O + O2
Z 409.  CHO  + HO2          = CO   + H2O2
Z 410.  CHO  + HO2          = CO2  + H2O
Z 411.  CHO  + H2           = CH2  + HO
Z 412.  CHO  + H2           = CH2O + H
Z 413.  CHO  + H2           = CH3  + O
Z 414.  CHO  + H2    + M    = CH3O         + M
Z 415.  CHO  + H2N          = CH2  + HNO
Z 416.  CHO  + H2N          = CH2O + HN
Z 417.  CHO  + H2N          = CH3  + NO
Z 418.  CHO  + H2N          = CH3O + N
Z 419.  CHO  + H2N          = CO   + H3N
Z 420.  CHO  + H2O          = CH2  + HO2
Z 421.  CHO  + H2O          = CH2O + HO
Z 422.  CHO  + H2O          = CH3  + O2
Z 423.  CHO  + H2O          = CH3O + O
Z 424.  CHO  + H2O2         = CH2O + HO2
Z 425.  CHO  + H2O2         = CH3  + O3
Z 426.  CHO  + H2O2         = CH3O + O2
Z 427.  CHO  + H3N          = CH2O + H2N
Z 428.  CHO  + H3N          = CH3  + HNO
Z 429.  CHO  + H3N          = CH3O + HN
Z 430.  CHO  + H3N          = CH4  + NO
Z 431.  CHO  + N            = CN   + HO
Z 432.  CHO  + N            = CNO  + H
Z 433.  CHO  + N            = CO   + HN
Z 434.  CHO  + NO           = CN   + HO2
Z 435.  CHO  + NO           = CNO  + HO
Z 436.  CHO  + NO           = CO   + HNO
Z 437.  CHO  + NO           = CO2  + HN
Z 438.  CHO  + NO2          = CNO  + HO2
Z 439.  CHO  + NO2          = CO2  + HNO
Z 440.  CHO  + N2           = CN   + HNO
Z 441.  CHO  + N2           = CNO  + HN
Z 442.  CHO  + N2O          = CNO  + HNO
Z 443.  CHO  + O            = CO   + HO
Z 444.  CHO  + O            = CO2  + H
Z 445.  CHO  + O2           = CO   + HO2
Z 446.  CHO  + O2           = CO2  + HO
Z 447.  CHO  + O3           = CO2  + HO2
Z 448.  CH2  + CH2          = C2H2 + H2
Z 449.  CH2  + CH2          = C2H3 + H
Z 450.  CH2  + CH2   + M    = C2H4         + M
```

```
Z 451.  CH2  + CH2O          = CH4   + CO
Z 452.  CH2  + CH2O          = C2H2  + H2O
Z 453.  CH2  + CH2O          = C2H3  + HO
Z 454.  CH2  + CH2O          = C2H4  + O
Z 455.  CH2  + CH3           = C2H3  + H2
Z 456.  CH2  + CH3           = C2H4  + H
Z 457.  CH2  + CH3   + M     = C2H5          + M
Z 458.  CH2  + CH3O          = CH2O  + CH3
Z 459.  CH2  + CH3O          = C2H3  + H2O
Z 460.  CH2  + CH3O          = C2H4  + HO
Z 461.  CH2  + CH3O          = C2H5  + O
Z 462.  CH2  + CH4           = CH3   + CH3
Z 463.  CH2  + CH4           = C2H4  + H2
Z 464.  CH2  + CH4           = C2H5  + H
Z 465.  CH2  + CH4   + M     = C2H6          + M
Z 466.  CH2  + CN            = C2    + H2N
Z 467.  CH2  + CN            = C2H   + HN
Z 468.  CH2  + CN            = C2H2  + N
Z 469.  CH2  + CNO           = CH2O  + CN
Z 470.  CH2  + CNO           = C2H   + HNO
Z 471.  CH2  + CNO           = C2H2  + NO
Z 472.  CH2  + CO            = C2    + H2O
Z 473.  CH2  + CO            = C2H   + HO
Z 474.  CH2  + CO            = C2H2  + O
Z 475.  CH2  + CO2           = CH2O  + CO
Z 476.  CH2  + CO2           = C2    + H2O2
Z 477.  CH2  + CO2           = C2H   + HO2
Z 478.  CH2  + CO2           = C2H2  + O2
Z 479.  CH2  + C2H           = CH3   + C2
Z 480.  CH2  + C2H2          = CH3   + C2H
Z 481.  CH2  + C2H2          = CH4   + C2
Z 482.  CH2  + C2H3          = CH3   + C2H2
Z 483.  CH2  + C2H3          = CH4   + C2H
Z 484.  CH2  + C2H4          = CH3   + C2H3
Z 485.  CH2  + C2H4          = CH4   + C2H2
Z 486.  CH2  + C2H5          = CH3   + C2H4
Z 487.  CH2  + C2H5          = CH4   + C2H3
Z 488.  CH2  + C2H6          = CH3   + C2H5
Z 489.  CH2  + C2H6          = CH4   + C2H4
Z 490.  CH2  + H     + M     = CH3           + M
Z 491.  CH2  + HN            = CH3   + N
Z 492.  CH2  + HNO           = CH2O  + HN
Z 493.  CH2  + HNO           = CH3   + NO
Z 494.  CH2  + HNO           = CH3O  + N
Z 495.  CH2  + HNO           = CO    + H3N
Z 496.  CH2  + HO            = CH2O  + H
Z 497.  CH2  + HO            = CH3   + O
Z 498.  CH2  + HO    + M     = CH3O          + M
Z 499.  CH2  + HO2           = CH2O  + HO
Z 500.  CH2  + HO2           = CH3   + O2
```

```
Z 501.  CH2  + HO2          = CH3O + O
Z 502.  CH2  + H2           = CH3  + H
Z 503.  CH2  + H2    + M    = CH4        + M
Z 504.  CH2  + H2N          = CH3  + HN
Z 505.  CH2  + H2N          = CH4  + N
Z 506.  CH2  + H2O          = CH2O + H2
Z 507.  CH2  + H2O          = CH3  + HO
Z 508.  CH2  + H2O          = CH3O + H
Z 509.  CH2  + H2O          = CH4  + O
Z 510.  CH2  + H2O2         = CH2O + H2O
Z 511.  CH2  + H2O2         = CH3  + HO2
Z 512.  CH2  + H2O2         = CH3O + HO
Z 513.  CH2  + H2O2         = CH4  + O2
Z 514.  CH2  + H3N          = CH3  + H2N
Z 515.  CH2  + H3N          = CH4  + HN
Z 516.  CH2  + N            = CN   + H2
Z 517.  CH2  + NO           = CH2O + N
Z 518.  CH2  + NO           = CN   + H2O
Z 519.  CH2  + NO           = CNO  + H2
Z 520.  CH2  + NO           = CO   + H2N
Z 521.  CH2  + NO2          = CH2O + NO
Z 522.  CH2  + NO2          = CN   + H2O2
Z 523.  CH2  + NO2          = CNO  + H2O
Z 524.  CH2  + NO2          = CO2  + H2N
Z 525.  CH2  + NO3          = CH2O + NO2
Z 526.  CH2  + NO3          = CNO  + H2O2
Z 527.  CH2  + N2           = CN   + H2N
Z 528.  CH2  + N2O          = CH2O + N2
Z 529.  CH2  + N2O          = CNO  + H2N
Z 530.  CH2  + O     + M    = CH2O       + M
Z 531.  CH2  + O            = CO   + H2
Z 532.  CH2  + O2           = CH2O + O
Z 533.  CH2  + O2           = CO   + H2O
Z 534.  CH2  + O2           = CO2  + H2
Z 535.  CH2  + O3           = CH2O + O2
Z 536.  CH2  + O3           = CO   + H2O2
Z 537.  CH2  + O3           = CO2  + H2O
Z 538.  CH2O         + M    = CO   + H2   + M
Z 539.  CH2O + CH2O         = CH4  + CO2
Z 540.  CH2O + CH2O         = C2H2 + H2O2
Z 541.  CH2O + CH2O         = C2H3 + HO2
Z 542.  CH2O + CH2O         = C2H4 + O2
Z 543.  CH2O + CH3          = C2H3 + H2O
Z 544.  CH2O + CH3          = C2H4 + HO
Z 545.  CH2O + CH3          = C2H5 + O
Z 546.  CH2O + CH3O         = C2H3 + H2O2
Z 547.  CH2O + CH3O         = C2H4 + HO2
Z 548.  CH2O + CH3O         = C2H5 + O2
Z 549.  CH2O + CH4          = CH3  + CH3O
Z 550.  CH2O + CH4          = C2H4 + H2O
```

```
Z 551.  CH2O + CH4          = C2H5 + HO
Z 552.  CH2O + CH4          = C2H6 + O
Z 553.  CH2O + CN           = C2H  + HNO
Z 554.  CH2O + CN           = C2H2 + NO
Z 555.  CH2O + CNO          = C2H2 + NO2
Z 556.  CH2O + CO           = C2   + H2O2
Z 557.  CH2O + CO           = C2H  + HO2
Z 558.  CH2O + CO           = C2H2 + O2
Z 559.  CH2O + CO2          = C2H2 + O3
Z 560.  CH2O + C2           = CO   + C2H2
Z 561.  CH2O + C2H          = CH3O + C2
Z 562.  CH2O + C2H          = CO   + C2H3
Z 563.  CH2O + C2H2         = CH3O + C2H
Z 564.  CH2O + C2H2         = CO   + C2H4
Z 565.  CH2O + C2H3         = CH3O + C2H2
Z 566.  CH2O + C2H3         = CO   + C2H5
Z 567.  CH2O + C2H4         = CH3O + C2H3
Z 568.  CH2O + C2H4         = CO   + C2H6
Z 569.  CH2O + C2H5         = CH3O + C2H4
Z 570.  CH2O + C2H6         = CH3O + C2H5
Z 571.  CH2O + H            = CH3  + O
Z 572.  CH2O + H      + M   = CH3O        + M
Z 573.  CH2O + HN           = CH3  + NO
Z 574.  CH2O + HN           = CH3O + N
Z 575.  CH2O + HN           = CO   + H3N
Z 576.  CH2O + HNO          = CH3  + NO2
Z 577.  CH2O + HNO          = CH3O + NO
Z 578.  CH2O + HNO          = CO2  + H3N
Z 579.  CH2O + HO           = CH3  + O2
Z 580.  CH2O + HO           = CH3O + O
Z 581.  CH2O + HO2          = CH3  + O3
Z 582.  CH2O + HO2          = CH3O + O2
Z 583.  CH2O + H2           = CH3  + HO
Z 584.  CH2O + H2           = CH3O + H
Z 585.  CH2O + H2           = CH4  + O
Z 586.  CH2O + H2N          = CH3  + HNO
Z 587.  CH2O + H2N          = CH3O + HN
Z 588.  CH2O + H2N          = CH4  + NO
Z 589.  CH2O + H2O          = CH3  + HO2
Z 590.  CH2O + H2O          = CH3O + HO
Z 591.  CH2O + H2O          = CH4  + O2
Z 592.  CH2O + H2O2         = CH3O + HO2
Z 593.  CH2O + H2O2         = CH4  + O3
Z 594.  CH2O + H3N          = CH3O + H2N
Z 595.  CH2O + H3N          = CH4  + HNO
Z 596.  CH2O + N            = CN   + H2O
Z 597.  CH2O + N            = CNO  + H2
Z 598.  CH2O + N            = CO   + H2N
Z 599.  CH2O + NO           = CN   + H2O2
Z 600.  CH2O + NO           = CNO  + H2O
```

```
Z 601.  CH2O + NO          = CO2  + H2N
Z 602.  CH2O + NO2         = CNO  + H2O2
Z 603.  CH2O + N2          = CNO  + H2N
Z 604.  CH2O + O           = CO   + H2O
Z 605.  CH2O + O           = CO2  + H2
Z 606.  CH2O + O2          = CO   + H2O2
Z 607.  CH2O + O2          = CO2  + H2O
Z 608.  CH2O + O3          = CO2  + H2O2
Z 609.  CH3  + CH3         = C2H4 + H2
Z 610.  CH3  + CH3         = C2H5 + H
Z 611.  CH3  + CH3  + M    = C2H6       + M
Z 612.  CH3  + CH3O        = C2H4 + H2O
Z 613.  CH3  + CH3O        = C2H5 + HO
Z 614.  CH3  + CH3O        = C2H6 + O
Z 615.  CH3  + CH4         = C2H5 + H2
Z 616.  CH3  + CH4         = C2H6 + H
Z 617.  CH3  + CN          = C2   + H3N
Z 618.  CH3  + CN          = C2H  + H2N
Z 619.  CH3  + CN          = C2H2 + HN
Z 620.  CH3  + CN          = C2H3 + N
Z 621.  CH3  + CNO         = CH3O + CN
Z 622.  CH3  + CNO         = C2H2 + HNO
Z 623.  CH3  + CNO         = C2H3 + NO
Z 624.  CH3  + CO          = C2H  + H2O
Z 625.  CH3  + CO          = C2H2 + HO
Z 626.  CH3  + CO          = C2H3 + O
Z 627.  CH3  + CO2         = CH3O + CO
Z 628.  CH3  + CO2         = C2H  + H2O2
Z 629.  CH3  + CO2         = C2H2 + HO2
Z 630.  CH3  + CO2         = C2H3 + O2
Z 631.  CH3  + C2H         = CH4  + C2
Z 632.  CH3  + C2H2        = CH4  + C2H
Z 633.  CH3  + C2H3        = CH4  + C2H2
Z 634.  CH3  + C2H4        = CH4  + C2H3
Z 635.  CH3  + C2H5        = CH4  + C2H4
Z 636.  CH3  + C2H6        = CH4  + C2H5
Z 637.  CH3  + H    + M    = CH4        + M
Z 638.  CH3  + HN          = CH4  + N
Z 639.  CH3  + HNO         = CH3O + HN
Z 640.  CH3  + HNO         = CH4  + NO
Z 641.  CH3  + HO          = CH3O + H
Z 642.  CH3  + HO          = CH4  + O
Z 643.  CH3  + HO2         = CH3O + HO
Z 644.  CH3  + HO2         = CH4  + O2
Z 645.  CH3  + H2          = CH4  + H
Z 646.  CH3  + H2N         = CH4  + HN
Z 647.  CH3  + H2O         = CH3O + H2
Z 648.  CH3  + H2O         = CH4  + HO
Z 649.  CH3  + H2O2        = CH3O + H2O
Z 650.  CH3  + H2O2        = CH4  + HO2
```

```
Z 651.  CH3   + H3N          = CH4   + H2N
Z 652.  CH3   + NO           = CH3O  + N
Z 653.  CH3   + NO           = CO    + H3N
Z 654.  CH3   + NO2          = CH3O  + NO
Z 655.  CH3   + NO2          = CO2   + H3N
Z 656.  CH3   + NO3          = CH3O  + NO2
Z 657.  CH3   + N2           = CN    + H3N
Z 658.  CH3   + N2O          = CH3O  + N2
Z 659.  CH3   + N2O          = CNO   + H3N
Z 660.  CH3   + O     + M    = CH3O        + M
Z 661.  CH3   + O2           = CH3O  + O
Z 662.  CH3   + O3           = CH3O  + O2
Z 663.  CH3O  + CH3O         = C2H4  + H2O2
Z 664.  CH3O  + CH3O         = C2H5  + HO2
Z 665.  CH3O  + CH3O         = C2H6  + O2
Z 666.  CH3O  + CH4          = C2H5  + H2O
Z 667.  CH3O  + CH4          = C2H6  + HO
Z 668.  CH3O  + CN           = C2H2  + HNO
Z 669.  CH3O  + CN           = C2H3  + NO
Z 670.  CH3O  + CNO          = C2H3  + NO2
Z 671.  CH3O  + CO           = C2H   + H2O2
Z 672.  CH3O  + CO           = C2H2  + HO2
Z 673.  CH3O  + CO           = C2H3  + O2
Z 674.  CH3O  + CO2          = C2H3  + O3
Z 675.  CH3O  + C2           = CO    + C2H3
Z 676.  CH3O  + C2H          = CO    + C2H4
Z 677.  CH3O  + C2H2         = CO    + C2H5
Z 678.  CH3O  + C2H3         = CO    + C2H6
Z 679.  CH3O  + H            = CH4   + O
Z 680.  CH3O  + HN           = CH4   + NO
Z 681.  CH3O  + HNO          = CH4   + NO2
Z 682.  CH3O  + HO           = CH4   + O2
Z 683.  CH3O  + HO2          = CH4   + O3
Z 684.  CH3O  + H2           = CH4   + HO
Z 685.  CH3O  + H2N          = CH4   + HNO
Z 686.  CH3O  + H2O          = CH4   + HO2
Z 687.  CH3O  + N            = CO    + H3N
Z 688.  CH3O  + NO           = CO2   + H3N
Z 689.  CH3O  + N2           = CNO   + H3N
Z 690.  CH4   + CH4          = C2H6  + H2
Z 691.  CH4   + CN           = C2H   + H3N
Z 692.  CH4   + CN           = C2H2  + H2N
Z 693.  CH4   + CN           = C2H3  + HN
Z 694.  CH4   + CN           = C2H4  + N
Z 695.  CH4   + CNO          = C2H3  + HNO
Z 696.  CH4   + CNO          = C2H4  + NO
Z 697.  CH4   + CO           = C2H2  + H2O
Z 698.  CH4   + CO           = C2H3  + HO
Z 699.  CH4   + CO           = C2H4  + O
Z 700.  CH4   + CO2          = C2H2  + H2O2
```

```
Z 701.  CH4   + CO2          = C2H3  + HO2
Z 702.  CH4   + CO2          = C2H4  + O2
Z 703.  CH4   + C2H6         = C2    + C2
Z 704.  CN    + CN           = C2    + N2
Z 705.  CN    + CNO          = C2    + N2O
Z 706.  CN    + CO           = C2    + NO
Z 707.  CN    + CO2          = CNO   + CO
Z 708.  CN    + CO2          = C2    + NO2
Z 709.  CN    + HNO          = CNO   + HN
Z 710.  CN    + HO           = CNO   + H
Z 711.  CN    + HO           = CO    + HN
Z 712.  CN    + HO2          = CNO   + HO
Z 713.  CN    + HO2          = CO    + HNO
Z 714.  CN    + HO2          = CO2   + HN
Z 715.  CN    + H2O          = CNO   + H2
Z 716.  CN    + H2O          = CO    + H2N
Z 717.  CN    + H2O2         = CNO   + H2O
Z 718.  CN    + H2O2         = CO2   + H2N
Z 719.  CN    + NO           = CNO   + N
Z 720.  CN    + NO           = CO    + N2
Z 721.  CN    + NO2          = CNO   + NO
Z 722.  CN    + NO2          = CO    + N2O
Z 723.  CN    + NO2          = CO2   + N2
Z 724.  CN    + NO3          = CNO   + NO2
Z 725.  CN    + NO3          = CO2   + N2O
Z 726.  CN    + N2O          = CNO   + N2
Z 727.  CN    + O     + M    = CNO           + M
Z 728.  CN    + O            = CO    + N
Z 729.  CN    + O2           = CNO   + O
Z 730.  CN    + O2           = CO    + NO
Z 731.  CN    + O2           = CO2   + N
Z 732.  CN    + O3           = CNO   + O2
Z 733.  CN    + O3           = CO    + NO2
Z 734.  CN    + O3           = CO2   + NO
Z 735.  CNO           + M    = CO    + N     + M
Z 736.  CNO   + CO           = C2    + NO2
Z 737.  CNO   + CO2          = C2    + NO3
Z 738.  CNO   + H            = CO    + HN
Z 739.  CNO   + HO           = CO    + HNO
Z 740.  CNO   + HO           = CO2   + HN
Z 741.  CNO   + HO2          = CO2   + HNO
Z 742.  CNO   + H2           = CO    + H2N
Z 743.  CNO   + H2O          = CO2   + H2N
Z 744.  CNO   + N            = CO    + N2
Z 745.  CNO   + NO           = CO    + N2O
Z 746.  CNO   + NO           = CO2   + N2
Z 747.  CNO   + NO2          = CO2   + N2O
Z 748.  CNO   + O            = CO    + NO
Z 749.  CNO   + O            = CO2   + N
Z 750.  CNO   + O2           = CO    + NO2
```

```
Z 751.  CNO  + O2              = CO2  + NO
Z 752.  CNO  + O3              = CO   + NO3
Z 753.  CNO  + O3              = CO2  + NO2
Z 754.  CO   + CO              = C2   + O2
Z 755.  CO   + CO2             = C2   + O3
Z 756.  CO   + HNO             = CO2  + HN
Z 757.  CO   + HO              = CO2  + H
Z 758.  CO   + HO2             = CO2  + HO
Z 759.  CO   + H2O             = CO2  + H2
Z 760.  CO   + H2O2            = CO2  + H2O
Z 761.  CO   + NO              = CO2  + N
Z 762.  CO   + NO2             = CO2  + NO
Z 763.  CO   + NO3             = CO2  + NO2
Z 764.  CO   + N2O             = CO2  + N2
Z 765.  CO   + O      + M      = CO2          + M
Z 766.  CO   + O2              = CO2  + O
Z 767.  CO   + O3              = CO2  + O2
Z 768.  C2   + C2H2            = C2H  + C2H
Z 769.  C2   + C2H3            = C2H  + C2H2
Z 770.  C2   + C2H4            = C2H  + C2H3
Z 771.  C2   + C2H4            = C2H2 + C2H2
Z 772.  C2   + C2H5            = C2H  + C2H4
Z 773.  C2   + C2H5            = C2H2 + C2H3
Z 774.  C2   + C2H6            = C2H  + C2H5
Z 775.  C2   + C2H6            = C2H2 + C2H4
Z 776.  C2   + C2H6            = C2H3 + C2H3
Z 777.  C2   + H      + M      = C2H          + M
Z 778.  C2   + HN              = C2H  + N
Z 779.  C2   + HNO             = C2H  + NO
Z 780.  C2   + HO              = C2H  + O
Z 781.  C2   + HO2             = C2H  + O2
Z 782.  C2   + H2              = C2H  + H
Z 783.  C2   + H2     + M      = C2H2         + M
Z 784.  C2   + H2N             = C2H  + HN
Z 785.  C2   + H2N             = C2H2 + N
Z 786.  C2   + H2O             = C2H  + HO
Z 787.  C2   + H2O             = C2H2 + O
Z 788.  C2   + H2O2            = C2H  + HO2
Z 789.  C2   + H2O2            = C2H2 + O2
Z 790.  C2   + H3N             = C2H  + H2N
Z 791.  C2   + H3N             = C2H2 + HN
Z 792.  C2   + H3N             = C2H3 + N
Z 793.  C2H  + C2H3            = C2H2 + C2H2
Z 794.  C2H  + C2H4            = C2H2 + C2H3
Z 795.  C2H  + C2H5            = C2H2 + C2H4
Z 796.  C2H  + C2H5            = C2H3 + C2H3
Z 797.  C2H  + C2H6            = C2H2 + C2H5
Z 798.  C2H  + C2H6            = C2H3 + C2H4
Z 799.  C2H  + H      + M      = C2H2         + M
Z 800.  C2H  + HN              = C2H2 + N
```

```
Z 801.  C2H   + HNO          = C2H2 + NO
Z 802.  C2H   + HO           = C2H2 + O
Z 803.  C2H   + HO2          = C2H2 + O2
Z 804.  C2H   + H2           = C2H2 + H
Z 805.  C2H   + H2    + M    = C2H3         + M
Z 806.  C2H   + H2N          = C2H2 + HN
Z 807.  C2H   + H2N          = C2H3 + N
Z 808.  C2H   + H2O          = C2H2 + HO
Z 809.  C2H   + H2O          = C2H3 + O
Z 810.  C2H   + H2O2         = C2H2 + HO2
Z 811.  C2H   + H2O2         = C2H3 + O2
Z 812.  C2H   + H3N          = C2H2 + H2N
Z 813.  C2H   + H3N          = C2H3 + HN
Z 814.  C2H   + H3N          = C2H4 + N
Z 815.  C2H2  + C2H4         = C2H3 + C2H3
Z 816.  C2H2  + C2H5         = C2H3 + C2H4
Z 817.  C2H2  + C2H6         = C2H3 + C2H5
Z 818.  C2H2  + C2H6         = C2H4 + C2H4
Z 819.  C2H2  + H     + M    = C2H3         + M
Z 820.  C2H2  + HN           = C2H3 + N
Z 821.  C2H2  + HNO          = C2H3 + NO
Z 822.  C2H2  + HO           = C2H3 + O
Z 823.  C2H2  + HO2          = C2H3 + O2
Z 824.  C2H2  + H2           = C2H3 + H
Z 825.  C2H2  + H2    + M    = C2H4         + M
Z 826.  C2H2  + H2N          = C2H3 + HN
Z 827.  C2H2  + H2N          = C2H4 + N
Z 828.  C2H2  + H2O          = C2H3 + HO
Z 829.  C2H2  + H2O          = C2H4 + O
Z 830.  C2H2  + H2O2         = C2H3 + HO2
Z 831.  C2H2  + H2O2         = C2H4 + O2
Z 832.  C2H2  + H3N          = C2H3 + H2N
Z 833.  C2H2  + H3N          = C2H4 + HN
Z 834.  C2H2  + H3N          = C2H5 + N
Z 835.  C2H3  + C2H5         = C2H4 + C2H4
Z 836.  C2H3  + C2H6         = C2H4 + C2H5
Z 837.  C2H3  + H     + M    = C2H4         + M
Z 838.  C2H3  + HN           = C2H4 + N
Z 839.  C2H3  + HNO          = C2H4 + NO
Z 840.  C2H3  + HO           = C2H4 + O
Z 841.  C2H3  + HO2          = C2H4 + O2
Z 842.  C2H3  + H2           = C2H4 + H
Z 843.  C2H3  + H2    + M    = C2H5         + M
Z 844.  C2H3  + H2N          = C2H4 + HN
Z 845.  C2H3  + H2N          = C2H5 + N
Z 846.  C2H3  + H2O          = C2H4 + HO
Z 847.  C2H3  + H2O          = C2H5 + O
Z 848.  C2H3  + H2O2         = C2H4 + HO2
Z 849.  C2H3  + H2O2         = C2H5 + O2
Z 850.  C2H3  + H3N          = C2H4 + H2N
```

```
Z 851.  C2H3 + H3N          = C2H5 + HN
Z 852.  C2H3 + H3N          = C2H6 + N
Z 853.  C2H4 + C2H6         = C2H5 + C2H5
Z 854.  C2H4 + H      + M   = C2H5       + M
Z 855.  C2H4 + HN           = C2H5 + N
Z 856.  C2H4 + HNO          = C2H5 + NO
Z 857.  C2H4 + HO           = C2H5 + O
Z 858.  C2H4 + HO2          = C2H5 + O2
Z 859.  C2H4 + H2           = C2H5 + H
Z 860.  C2H4 + H2     + M   = C2H6       + M
Z 861.  C2H4 + H2N          = C2H5 + HN
Z 862.  C2H4 + H2N          = C2H6 + N
Z 863.  C2H4 + H2O          = C2H5 + HO
Z 864.  C2H4 + H2O          = C2H6 + O
Z 865.  C2H4 + H2O2         = C2H5 + HO2
Z 866.  C2H4 + H2O2         = C2H6 + O2
Z 867.  C2H4 + H3N          = C2H5 + H2N
Z 868.  C2H4 + H3N          = C2H6 + HN
Z 869.  C2H5 + H      + M   = C2H6       + M
Z 870.  C2H5 + HN           = C2H6 + N
Z 871.  C2H5 + HNO          = C2H6 + NO
Z 872.  C2H5 + HO           = C2H6 + O
Z 873.  C2H5 + HO2          = C2H6 + O2
Z 874.  C2H5 + H2           = C2H6 + H
Z 875.  C2H5 + H2N          = C2H6 + HN
Z 876.  C2H5 + H2O          = C2H6 + HO
Z 877.  C2H5 + H2O2         = C2H6 + HO2
Z 878.  C2H5 + H3N          = C2H6 + H2N
Z 879.  H    + H      + M   = H2         + M
Z 880.  H    + HN           = H2   + N
Z 881.  H    + HN     + M   = H2N        + M
Z 882.  H    + HNO          = HN   + HO
Z 883.  H    + HNO          = H2   + NO
Z 884.  H    + HNO          = H2N  + O
Z 885.  H    + HNO          = H2O  + N
Z 886.  H    + HO           = H2   + O
Z 887.  H    + HO     + M   = H2O        + M
Z 888.  H    + HO2          = HO   + HO
Z 889.  H    + HO2          = H2   + O2
Z 890.  H    + HO2          = H2O  + O
Z 891.  H    + HO2    + M   = H2O2       + M
Z 892.  H    + H2N          = HN   + H2
Z 893.  H    + H2N    + M   = H3N        + M
Z 894.  H    + H2O          = HO   + H2
Z 895.  H    + H2O2         = HO   + H2O
Z 896.  H    + H2O2         = HO2  + H2
Z 897.  H    + H3N          = H2   + H2N
Z 898.  H    + N      + M   = HN         + M
Z 899.  H    + NO           = HN   + O
Z 900.  H    + NO     + M   = HNO        + M
```

```
Z 901.  H    + NO          = HO   + N
Z 902.  H    + NO2         = HN   + O2
Z 903.  H    + NO2         = HNO  + O
Z 904.  H    + NO2         = HO   + NO
Z 905.  H    + NO2         = HO2  + N
Z 906.  H    + NO3         = HN   + O3
Z 907.  H    + NO3         = HNO  + O2
Z 908.  H    + NO3         = HO   + NO2
Z 909.  H    + NO3         = HO2  + NO
Z 910.  H    + N2          = HN   + N
Z 911.  H    + N2O         = HN   + NO
Z 912.  H    + N2O         = HNO  + N
Z 913.  H    + N2O         = HO   + N2
Z 914.  H    + O     + M   = HO          + M
Z 915.  H    + O2          = HO   + O
Z 916.  H    + O2    + M   = HO2         + M
Z 917.  H    + O3          = HO   + O2
Z 918.  H    + O3          = HO2  + O
Z 919.  HN   + HN          = H2   + N2
Z 920.  HN   + HN          = H2N  + N
Z 921.  HN   + HNO         = H2   + N2O
Z 922.  HN   + HNO         = H2N  + NO
Z 923.  HN   + HNO         = H2O  + N2
Z 924.  HN   + HO          = H2   + NO
Z 925.  HN   + HO          = H2N  + O
Z 926.  HN   + HO          = H2O  + N
Z 927.  HN   + HO2         = HNO  + HO
Z 928.  HN   + HO2         = H2   + NO2
Z 929.  HN   + HO2         = H2N  + O2
Z 930.  HN   + HO2         = H2O  + NO
Z 931.  HN   + HO2         = H2O2 + N
Z 932.  HN   + H2    + M   = H3N         + M
Z 933.  HN   + H2N         = H3N  + N
Z 934.  HN   + H2O         = HNO  + H2
Z 935.  HN   + H2O         = HO   + H2N
Z 936.  HN   + H2O         = H3N  + O
Z 937.  HN   + H2O2        = HNO  + H2O
Z 938.  HN   + H2O2        = HO2  + H2N
Z 939.  HN   + H2O2        = H3N  + O2
Z 940.  HN   + H3N         = H2N  + H2N
Z 941.  HN   + NO          = HNO  + N
Z 942.  HN   + NO          = HO   + N2
Z 943.  HN   + NO2         = HNO  + NO
Z 944.  HN   + NO2         = HO   + N2O
Z 945.  HN   + NO2         = HO2  + N2
Z 946.  HN   + NO3         = HNO  + NO2
Z 947.  HN   + NO3         = HO2  + N2O
Z 948.  HN   + N2O         = HNO  + N2
Z 949.  HN   + O     + M   = HNO         + M
Z 950.  HN   + O           = HO   + N
```

```
Z 951.   HN    + O2              = HNO   + O
Z 952.   HN    + O2              = HO    + NO
Z 953.   HN    + O2              = HO2   + N
Z 954.   HN    + O3              = HNO   + O2
Z 955.   HN    + O3              = HO    + NO2
Z 956.   HN    + O3              = HO2   + NO
Z 957.   HNO           + M       = HO    + N     + M
Z 958.   HNO   + HNO             = H2N   + NO2
Z 959.   HNO   + HNO             = H2O   + N2O
Z 960.   HNO   + HNO             = H2O2  + N2
Z 961.   HNO   + HO              = H2    + NO2
Z 962.   HNO   + HO              = H2N   + O2
Z 963.   HNO   + HO              = H2O   + NO
Z 964.   HNO   + HO              = H2O2  + N
Z 965.   HNO   + HO2             = H2    + NO3
Z 966.   HNO   + HO2             = H2N   + O3
Z 967.   HNO   + HO2             = H2O   + NO2
Z 968.   HNO   + HO2             = H2O2  + NO
Z 969.   HNO   + H2              = HO    + H2N
Z 970.   HNO   + H2              = H3N   + O
Z 971.   HNO   + H2N             = H3N   + NO
Z 972.   HNO   + H2O             = HO2   + H2N
Z 973.   HNO   + H2O             = H3N   + O2
Z 974.   HNO   + H2O2            = H3N   + O3
Z 975.   HNO   + N               = HO    + N2
Z 976.   HNO   + NO              = HO    + N2O
Z 977.   HNO   + NO              = HO2   + N2
Z 978.   HNO   + NO2             = HO2   + N2O
Z 979.   HNO   + O               = HO    + NO
Z 980.   HNO   + O               = HO2   + N
Z 981.   HNO   + O2              = HO    + NO2
Z 982.   HNO   + O2              = HO2   + NO
Z 983.   HNO   + O3              = HO    + NO3
Z 984.   HNO   + O3              = HO2   + NO2
Z 985.   HO    + HO              = H2    + O2
Z 986.   HO    + HO              = H2O   + O
Z 987.   HO    + HO    + M       = H2O2          + M
Z 988.   HO    + HO2             = H2    + O3
Z 989.   HO    + HO2             = H2O   + O2
Z 990.   HO    + HO2             = H2O2  + O
Z 991.   HO    + H2N             = H3N   + O
Z 992.   HO    + H2O             = HO2   + H2
Z 993.   HO    + H2O2            = HO2   + H2O
Z 994.   HO    + H3N             = H2N   + H2O
Z 995.   HO    + NO              = HO2   + N
Z 996.   HO    + NO2             = HO2   + NO
Z 997.   HO    + NO3             = HO2   + NO2
Z 998.   HO    + N2O             = HO2   + N2
Z 999.   HO    + O     + M       = HO2           + M
Z1000.   HO    + O2              = HO2   + O
```

```
Z1001.  HO    + O3          = HO2   + O2
Z1002.  HO2   + HO2         = H2O   + O3
Z1003.  HO2   + HO2         = H2O2  + O2
Z1004.  HO2   + H2N         = H3N   + O2
Z1005.  HO2   + H3N         = H2N   + H2O2
Z1006.  H2    + H2O2        = H2O   + H2O
Z1007.  H2    + N     + M   = H2N           + M
Z1008.  H2    + NO          = H2N   + O
Z1009.  H2    + NO          = H2O   + N
Z1010.  H2    + NO2         = H2N   + O2
Z1011.  H2    + NO2         = H2O   + NO
Z1012.  H2    + NO2         = H2O2  + N
Z1013.  H2    + NO3         = H2N   + O3
Z1014.  H2    + NO3         = H2O   + NO2
Z1015.  H2    + NO3         = H2O2  + NO
Z1016.  H2    + N2          = H2N   + N
Z1017.  H2    + N2O         = H2N   + NO
Z1018.  H2    + N2O         = H2O   + N2
Z1019.  H2    + O     + M   = H2O           + M
Z1020.  H2    + O2          = H2O   + O
Z1021.  H2    + O2    + M   = H2O2          + M
Z1022.  H2    + O3          = H2O   + O2
Z1023.  H2    + O3          = H2O2  + O
Z1024.  H2N   + NO          = H2O   + N2
Z1025.  H2N   + NO2         = H2O   + N2O
Z1026.  H2N   + NO2         = H2O2  + N2
Z1027.  H2N   + NO3         = H2O2  + N2O
Z1028.  H2N   + O           = H2O   + N
Z1029.  H2N   + O2          = H2O   + NO
Z1030.  H2N   + O2          = H2O2  + N
Z1031.  H2N   + O3          = H2O   + NO2
Z1032.  H2N   + O3          = H2O2  + NO
Z1033.  H2O   + NO          = H2O2  + N
Z1034.  H2O   + NO2         = H2O2  + NO
Z1035.  H2O   + NO3         = H2O2  + NO2
Z1036.  H2O   + N2O         = H2O2  + N2
Z1037.  H2O   + O     + M   = H2O2          + M
Z1038.  H2O   + O2          = H2O2  + O
Z1039.  H2O   + O3          = H2O2  + O2
Z1040.  N     + N     + M   = N2            + M
Z1041.  N     + NO          = N2    + O
Z1042.  N     + NO    + M   = N2O           + M
Z1043.  N     + NO2         = NO    + NO
Z1044.  N     + NO2         = N2    + O2
Z1045.  N     + NO2         = N2O   + O
Z1046.  N     + NO3         = NO    + NO2
Z1047.  N     + NO3         = N2    + O3
Z1048.  N     + NO3         = N2O   + O2
Z1049.  N     + N2O         = NO    + N2
Z1050.  N     + O     + M   = NO            + M
```

Z1051.	N	+	O2		=	NO	+	O	
Z1052.	N	+	O2	+ M	=	NO2			+ M
Z1053.	N	+	O3		=	NO	+	O2	
Z1054.	N	+	O3		=	NO2	+	O	
Z1055.	N	+	O3	+ M	=	NO3			+ M
Z1056.	NO	+	NO		=	N2	+	O2	
Z1057.	NO	+	NO		=	N2O	+	O	
Z1058.	NO	+	NO2		=	N2	+	O3	
Z1059.	NO	+	NO2		=	N2O	+	O2	
Z1060.	NO	+	NO3		=	NO2	+	NO2	
Z1061.	NO	+	NO3		=	N2O	+	O3	
Z1062.	NO	+	N2O		=	NO2	+	N2	
Z1063.	NO	+	O	+ M	=	NO2			+ M
Z1064.	NO	+	O2		=	NO2	+	O	
Z1065.	NO	+	O2	+ M	=	NO3			+ M
Z1066.	NO	+	O3		=	NO2	+	O2	
Z1067.	NO	+	O3		=	NO3	+	O	
Z1068.	NO2	+	NO2		=	N2O	+	O3	
Z1069.	NO2	+	N2O		=	NO3	+	N2	
Z1070.	NO2	+	O	+ M	=	NO3			+ M
Z1071.	NO2	+	O2		=	NO3	+	O	
Z1072.	NO2	+	O3		=	NO3	+	O2	
Z1073.	N2	+	O	+ M	=	N2O			+ M
Z1074.	N2	+	O2		=	N2O	+	O	
Z1075.	N2	+	O3		=	N2O	+	O2	
Z1076.	O	+	O	+ M	=	O2			+ M
Z1077.	O	+	O2	+ M	=	O3			+ M
Z1078.	O	+	O3		=	O2	+	O2	

APPENDIX D

SUMMARY OF INFORMATION ON REACTIONS IN KINETICS SURVEY

This Appendix contains a summary of the information contained in Sections 6, 7 and 8 of this report on the recommended reaction rates. It also indicates reactions for which no rate data are available. This listing is in a format for direct comparison with the listing in Section 6 on the evaluation of probable relative reaction importance.

EVALUATION OF PROBABLE RELATIVE REACTION IMPORTANCE

This section contains a reaction-by-reaction evaluation of the potential importance of each of the 322 reactions considered in this study. It is extremely important to understand the groundrules for the evaluation and scope of its applicability. The comments found in this section refer only to the combustion of methane-air from 80-125% stoichiometric air, from 1500-2500K. This has been stated elsewhere in this report, but bears repeating. The use of the information in this section outside the limits mentioned, may be valid, but should be approached with caution. Not only would the relative importance of the given reactions require evaluation for specific conditions but other species and, therefore, additional reactions might have to be considered outside those limits. And of course, other reaction systems such as higher hydrocarbons or fuel-nitrogen containing systems would bear their own evaluations.

The headings in this section are as follows:

Headings	Description
REACTION	Written in both directions Reaction number indicated F = Forward R = Reverse
RE	R_F for both directions given at 2000K (mid-range of 1500-2500K) note: in the thermochemical tables $R_F/2RT$ is used in the expression for Log K_C in Section 4 of the full survey
NOTES	A Probably important B Possibly important C Probably unimportant * Flag indicating reaction was rated either A or B
COMMENTS	Notes explaining reasons for ranking

RECOMMENDED RATES FOR REACTIONS FOUND IN THE LITERATURE AND ADDITIONAL REACTIONS OF POTENTIAL IMPORTANCE

In assembling recommendations for rates to be used, every attempt was made to use existing critical evaluations. This was done so as not to impose an additional layer of "slightly different" rate parameters to an already confusing array of differing opinions. Where alterations were required the nature of the change has been carefully indicated. Where critical evaluations were not available, use was made of reliable experimental data in the appropriate temperature range. Where data in the appropriate range were not available, reliable data outside the temperature range were extrapolated to the range of interest with a reasonable temperature dependence. Where no such data were available, literature estimates that seemed reasonable were used. And finally, where no literature estimates were available, reasonable estimates were made or were requested to be made as indicated.

In all cases, an attempt has been made to make the rates self consistent; i.e., to bring relative rates of competing reactions into line. While a number of rates have been altered for this purpose, there may still exist some that are not yet consistent with other similar reactions. In many cases, recently revised thermochemistry has an influence on estimated activation energies of reactions. In cases where older estimates have activation energies significantly below the endothermicity currently calculated, appropriate adjustments have been made.

The rates given are recommendations as of December 31, 1974.

The headings in this section are as follows:

Headings	Description
REACTION	Written in the direction of the recommendation. Each reaction is recommended in one direction only. Reverse rate may be obtained by using the expression for K_C in Section 4 of the full survey $K_C = k_f/k_r$ Each reaction is numbered and direction indicated F = Forward of master reaction R = Reverse of master reaction * Flag to indicate that reaction should be considered in initial screening for combustion of methane/air at one atmosphere between 1500-2500K and 80-125% stoichiometric air.
LOG A	Common logarithm of constant preexponential term. Uncertainty in parenthesis.
B	Exponent of T
C	Activation energy (kcal/mole) Uncertainty in parenthesis. note: $k = 10^{(\log A)} T^{B} e^{-C/RT}$
COMMENTS	Basis for selection of recommendation. References listed in Section 9 of the full survey Explanation of notes: Note A - No experimental data in literature. Given rate selected as most reliable. Note B - No other estimate available in literature. Note C - No literature estimate available, estimated as indicated. Note D - Limited experimental data available, use with caution. (J-F) - Johnston-Parr method. (EST) - Order of magnitude estimate. (EVAL) - Evaluation. (EXP) - Based on experimental determinations.
LOG K	Calculated from recommended rate expression at temperatures of 800, 1500, 2000 and 2500K (note: 800K is outside considered range, provided for reference only).

	REACTION	HR	NOTES	COMMENTS
17.	CH + CH3 = CH2 + CH	20.3	B *	CONSIDER BOTH DIRECTIONS, FUEL RICH
18.	CH2 + CH = CH + CH	-20.3	B *	POSSIBLE ROLE CH/HCN PROBABLY MINOR
27.	CH + CH2 = CH2 + CO	-95.5	C	FORWARD UNIMPORTANT FOR CHO REMOVAL
28.	CH2 + CO = CH + CHO	95.5	C	H, O, HO MORE LIKELY REACTION PARTNERS REVERSE ENDOTHERMIC
37.	CH + CH2O = CHO + CH2	-15.6	C	CH, CH2 MINOR RX PARTNERS FOR CHO, CH2O
38.	CHO + CH2 = CH + CH2O	15.6	C	
47.	CH + CH2O = CH3 + CO	-108.6	C	CH MINOR RX PARTNER FOR CH2O
48.	CH3 + CO = CH + CH2O	108.6	C	REVERSE HIGHLY ENDOTHERMIC
57.	CH + CH3 = CH2 + CH2	7.4	C	(CH)(CH3) AND (CH2)(CH2) LIKELY SMALL
58.	CH2 + CH2 = CH + CH3	-7.4	C	POSSIBLY FUEL RICH
65.	CH + CH3O = CHO + CH3	-102.7	C	LOW CONCENTRATIONS FORWARD
66.	CHO + CH3 = CH + CH3O	102.7	C	REVERSE HIGHLY ENDOTHERMIC
77.	CH + CH3O = CH2 + CH2O	-79.6	C	LOW CONCENTRATIONS FORWARD
78.	CH2 + CH2O = CH + CH3O	79.6	C	REVERSE ENDOTHERMIC
87.	CH + CH3O = CH4 + CO	-191.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
88.	CH4 + CO = CH + CH3O	191.3	C	
97.	CH + CH4 = CH2 + CH3	3.0	B *	CONSIDER BOTH DIRECTIONS, FUEL RICH
98.	CH2 + CH3 = CH + CH4	-3.0	B *	CH4 STARTING MAT'L, CH3 INITIAL INTERMED THERMALLY NEUTRAL
107.	CH + CO2 = CHO + CO	-68.3	B *	CONSIDER FORWARD, FUEL RICH
108.	CHO + CO = CH + CO2	68.3	C	(CO2) HIGH, PATH FROM CH TO CO REVERSE ENDOTHERMIC

	REACTION	LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K			
19.	CH2 + CN = CH + CHN	* 12.5	0.	5.	SRI ESTIMATE	8.9	11.8	12.0	12.1
29.	CH + CHO = CH2 + CO	10.5 10.9)	0.7	1. (5.)	BASED ON T1 (J-P) NOTE A	11.5	12.6	12.7	12.8
39.	CH + CH2O = CH2 + CHO	11.0 10.9)	0.7	4. (5.)	BASED ON T1 (J-P) NOTE A	9.8	12.6	12.9	13.0
49.	CH + CH2O = CH3 + CO				NO RATE DATA				
59.	CH2 + CH2 = CH + CH3	11.7 10.9)	0.5	6. (5.)	BASED ON T1 (EST) NOTE B	8.6	12.4	12.7	12.9
69.	CH + CH3O = CHO + CH3				NO RATE DATA				
79.	CH + CH3O = CH2 + CH2O				NO RATE DATA				
89.	CH + CH3O = CH4 + CO				NO RATE DATA				
99.	CH +CH4 = CH2 + CH3	* 11.4 10.5)	0.7	6. (5.)	BASED ON T1 (J-P) NOTE A	8.8	12.7	13.1	13.3
109.	CH + CO2 = CHO + CO	* 10.0 10.5)	0.5	6. (5.)	BASED ON T1 (EST) NOTE B	6.9	10.7	11.0	11.2

	REACTION	HR	NOTES	COMMENTS
117.	CH + H + M = CH2 + M	-105.1	C	THIRD ORDER, LOW CONC IN FORWARD
118.	CH2 + M = CH + H + M	105.1	C	REVERSE HIGHLY ENDOTHERMIC
127.	CH + HN = CHN + H	-165.4	C	LOW CONCENTRATIONS FORWARD
128.	CHN + H = CH + HN	165.4	C	HIGHLY ENDOTHERMIC REVERSE
137.	CH + HN = CH2 + N	-26.2	C	LOW CONCENTRATIONS BOTH DIRECTIONS
138.	CH2 + N = CH + HN	26.2	C	
147.	CH + HN = CN + H2	-128.4	C	LOW CONCENTRATIONS FORWARD
148.	CN + H2 = CH + HN	128.4	C	REVERSE HIGHLY ENDOTHERMIC FOUR-CENTER REACTION
157.	CH + HNO = CHN + HO	-123.8	C	FORWARD POSSIBLE FOR NOH STRUCTURE
158.	CHN + HO = CH + HNO	123.8	C	CONCENTRATIONS LOW REVERSE HIGHLY ENDOTHERMIC
167.	CH + HNO = CHO + HN	-67.8	C	LOW CONCENTRATIONS BOTH DIRECTIONS
168.	CHO + HN = CH + HNO	67.8	C	REVERSE ENDOTHERMIC
177.	CH + HNO = CH2 + NO	-52.4	C	LOW CONCENTRATIONS FORWARD
178.	CH2 + NO = CH + HNO	52.4	C	CH2 + NO = CH2O + N MORE LIKELY REVERSE
187.	CH + HNO = CH2O + N	-73.4	C	LOW CONCENTRATIONS FORWARD
188.	CH2O + N = CH + HNO	73.4	C	REVERSE ENDOTHERMIC
197.	CH + HNO = CN + H2O	-121.7	C	LOW CONCENTRATIONS FORWARD
198.	CN + H2O = CH + HNO	121.7	C	REVERSE HIGHLY ENDOTHERMIC FOUR-CENTER REACTION FOR NOH STRUCTURE
207.	CH + HO = CHO + H	-89.6	B *	CONSIDER FORWARD
208.	CHO + H = CH + HO	89.6	C	REVERSE ENDOTHERMIC

	REACTION	LOG A	B	C	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K			
117.	CH + H + M = CH2 + M	19.0 10.5)	-1.	0.	EST BY METHOD OF BDS NOTE C	16.5	15.8	15.7	15.6
127.	CH + HN = CHN + H				NO RATE DATA				
138.	CH2 + N = CH + HN	11.8 10.5)	0.67	40.5 (5.)	BASED ON MB (J-P) NOTE B	-16.0	8.0	9.6	10.5
147.	CH + HN = CN + H2				NO RATE DATA				
157.	CH + HNO = CHN + HO				NO RATE DATA				
167.	CH + HNO = CHO + HN				NO RATE DATA				
177.	CH + HNO = CH2 + NO	11.8 10.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	13.0	13.4	13.5	13.5
187.	CH + HNO = CH2O + N				NO RATE DATA				
197.	CH + HNO = CN + H2O				NO RATE DATA				
207.	CH + HO = CHO + H	* 11.7 10.5)	0.5	10. (5.)	BASED ON T1 (EST) NOTE B	9.7	11.8	12.3	12.5

	REACTION	HR	NOTES	COMMENTS
217.	CH + HO = CH2 + O	1.2	C	CH + HO = CHO + H MORE LIKELY FORWARD
218.	CH2 + O = CH + HO	-1.2	C	CH2 + O = CHO + H MORE LIKELY REVERSE
219.	CH + HO + M = CH2O + M	-178.9	C	THIRD ORDER, LOW CONCENTRATION FORWARD
220.	CH2O + M = CH + HO + M	178.9	C	REVERSE HIGHLY ENDOTHERMIC NOT LIKELY TO BE ELEMENTARY REACTION
221.	CH + HO = CU + H2	-178.3	C	FOUR-CENTER REACTION
222.	CO + H2 = CH + HO	178.3	C	CH + HO = CHO + H MORE LIKELY FORWARD REVERSE HIGHLY ENDOTHERMIC
223.	CH + HO2 = CHO + HO	-129.6	C	H-O2 WEAKER THAN HO-O
224.	CHO + HO = CH + HO2	129.6	C	CH + HO2 = CH2 + HO2 MORE LIKELY FORWARD REVERSE HIGHLY ENDOTHERMIC
225.	CH + HO2 = CH2+ O2	-56.7	B +	CONSIDER FORWARD
226.	CH2+ O2 = CH + HO2	56.7	C	REVERSE ENDOTHERMIC
227.	CH + HO2 = CH2O + O	-112.8	C	NOT LIKELY TO BE ELEMENTARY REACTION
228.	CH2O + O = CH + HO2	112.8	C	
229.	CH + HO2 = CO + H2O	-233.4	C	FOUR-CENTER REACTION
230.	CO + H2O = CH + HO2	233.4	C	CH + HO2 = CH2 + O2 MORE LIKELY FORWARD REVERSE HIGHLY ENDOTHERMIC
231.	CH + HO2 = CO2 + H2	-239.7	C	NOT LIKELY TO BE ELEMENTARY REACTION
232.	CO2 + H2 = CH + HO2	239.7	C	
233.	CH + H2 = CH2 + H	1.4	B +	CONSIDER BOTH DIRECTIONS FUEL RICH
234.	CH2 + H = CH + H2	-1.4	B +	
235.	CH + H2 + M = CH3 + M	-109.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
236.	CH3 + M = CH + H2 + M	109.2	C	

	REACTION	LOG A	B	C	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
							LOG K		
219.	CH2 + O = CH + HO	11.3 10.5)	0.7	26. (5.)	BASED ON M8 (2-P) NOTE A	-9.9	9.7	10.8	11.4
229.	CH + HO + M = CH2O + M				NO RATE DATA				
230.	CH + HO = CU + H2				NO RATE DATA				
231.	CH + HO2 = CHO + HO	11.7 10.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	9.6	12.4	12.7	12.9
232.	CH + HO2 = CH2 + O2	* 10.0 10.5)	0.5	19. (5.)	BASED ON T1 (EST) NOTE B	0.3	9.4	10.0	10.4
233.	CH + HO2 = CH2O + O				NO RATE DATA				
234.	CH + HO2 = CO + H2O				NO RATE DATA				
235.	CH + HO2 = CO2 + H2				NO RATE DATA				
236.	CH + H2 = CH2 + H	* 13.5 10.5)	0.7	5. (5.)	BASED ON M8,T1 (2-P) WITH T=5 NOTE A	9.6	13.0	13.3	13.4
237.	CH + H2 = CH3 + M				NO RATE DATA				

	REACTION	HR	NOTES	COMMENTS
317.	CH + H2O = CHO + H2	-74.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
318.	CHO + H2 = CH + H2O	74.5	C	
321.	CH + H2O = CH2+ HO	18.2	B +	CONSIDER BOTH DIRECTIONS FUEL RICH
322.	CH2+ HO = CH + H2O	-18.2	B +	
337.	CH + H2O = CH2O + H	-51.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
338.	CH2O + H = CH + H2O	51.6	C	
365.	CH + H2O = CH3 + O	12.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
366.	CH3 + O = CH + H2O	-12.0	C	
349.	CH + H2O + M = CH3O + M	-81.1	C	NOT LIKELY TO BE ELEMENTARY REACTION
350.	CH3O + M = CH + H2O + M	81.1	C	
367.	CH + N + M = CHN + M	-224.3	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD
368.	CHN + M = CH + N + M	224.3	C	REVERSE HIGHLY ENDOTHERMIC
377.	CH + N = CN + H	-98.9	C	LOW CONCENTRATIONS FORWARD
378.	CN + H = CH + N	98.9	C	REVERSE HIGHLY ENDOTHERMIC
387.	CH + NO = CHN + O	-70.2	B +	CONSIDER FORWARD FUEL RICH
388.	CHN + O = CH + NO	70.2	C	REVERSE ENDOTHERMIC
397.	CH + NO = CHO + N	-41.6	B +	CONSIDER FORWARD FUEL RICH
398.	CHO + N = CH + NO	41.6	C	REVERSE ENDOTHERMIC
407.	CH + NO = CN + HO	-51.1	C	FOUR-CENTER REACTION
408.	CN + HO = CH + NO	51.1	C	

	REACTION	LOG A	B	C	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
							LOG K		
317.	CH + H2O = CHO + H2				NO RATE DATA				
328.	CH2 + HO = CH + H2O	* 11.7 10.5)	0.5	6. (5.)	BASED ON T1 (EST) NOTE B	8.6	12.4	12.7	12.9
337.	CH + H2O = CH2O + H				NO RATE DATA				
347.	CH + H2O = CH3 + O				NO RATE DATA				
357.	CH + H2O + M = CH3O + M				NO RATE DATA				
367.	CH + N = CN + H				NO RATE DATA				
377.	CH + N = CN + H				NO RATE DATA				
387.	CI + NO = CHN + O	* 12.3	0.	0.	SRI ESTIMATE	12.3	12.3	12.3	12.3
397.	CH + NO = CHO + N	* 13.2	0.	10.	SRI ESTIMATE SPIN RETARDED	9.9	11.7	12.1	12.3
407.	CH + NO = CN + HO				NO RATE DATA				

	REACTION	HR	NOTES	COMMENTS
512.	CH + N2 + CO → HN + CO	-101.0	C	FOUR-CENTER REACTION
513.	CO + HN → CH + NO	101.0	C	
523.	CH + NO2 → CHO + NO2	-117.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
524.	CHO + O2 → CH + NO2	117.5	C	
533.	CH + NO2 → CHO + NO	-121.0	C	LOW CONCENTRATIONS FORWARD
534.	CHO + NO → CH + NO2	121.0	C	REVERSE HIGHLY ENDOTHERMIC
543.	CH + NO2 → CN + HO2	-42.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
544.	CN + HO2 → CH + NO2	42.6	C	
553.	CH + NO2 → CO + HNO	-156.1	C	LOW CONCENTRATIONS FORWARD
554.	CO + HNO → CH + NO2	156.1	C	REVERSE HIGHLY ENDOTHERMIC
563.	CH + NO2 → CO2 + HN	-153.7	C	NOT LIKELY TO BE ELEMENTARY REACTION
564.	CO2 + HN → CH + NO2	153.7	C	
573.	CH + N2 → CHN + N	5.1	B *	FORWARD IS LOW ENERGY N-N BREAKING
574.	CHN + N → CH + N2	-5.1	B *	POTENTIALLY VERY IMPORTANT SPIN RETARDED CONSIDER BOTH DIRECTIONS
583.	CH + N2 → CN + HN	51.6	B *	FOUR-CENTER REACTION
584.	CN + HN → CH + N2	-51.6	B *	FORWARD IS MODERATE ENERGY N-N BREAKING CONSIDER BOTH DIRECTIONS FOR SCREENING
593.	CH + NO → CHO + NO	-109.1	C	LOW CONCENTRATIONS FORWARD
594.	CHO + NO → CH + NO2	109.1	C	REVERSE HIGHLY ENDOTHERMIC
603.	CH + N2O → CHO + N2	-155.0	C	LOW CONCENTRATIONS FORWARD
604.	CHO + N2 → CH + N2O	155.0	C	REVERSE HIGHLY ENDOTHERMIC

	REACTION	LOG A	B	C	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
							LOG K		
511.	CH + NO → CO + HN				NO RATE DATA				
523.	CH + NO2 → CHO + O2				NO RATE DATA				
533.	CH + NO2 → CHO + NO				NO RATE DATA				
543.	CH + NO2 → CN + HO2				NO RATE DATA				
553.	CH + NO2 → CO + HNO				NO RATE DATA				
563.	CH + NO2 → CO2 + HN				NO RATE DATA				
573.	CH + N2 → CHN + N	* 13.3	0.	13.	ORIG SRI ESTIMATE SPIN RETARDED	9.8	11.4	11.9	12.2
		11.6	0.	19.	REVISED SRI ESTIMATE	-2.0	0.2	0.9	3.3
		13.3	0.	48.	ALT PYOR CURR CALC	-21.7	6.3	8.1	9.1
583.	CH + N2 → CN + HN	* 14.5	0.	92.	SRI ESTIMATE FOUR-CENTER BASED ON EST ACTIV ENERGY 40. FOR REV	-52.9	1.1	6.6	8.5
593.	CH + N2O → CHN + NO				NO RATE DATA				
603.	CH + N2O → CHO + N2				NO RATE DATA				

	REACTION	HR	NOTES	COMMENTS
517.	CH + N2O → CN + HNO	-38.4	C	LOW CONCENTRATIONS BOTH DIRECTIONS
518.	CN + HNO → CH + N2O	38.4	C	
527.	CH + O + M → CHO + M	-195.7	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD
528.	CHO + M → CH + O + M	195.7	C	REVERSE HIGHLY ENDOTHERMIC
537.	CH + O → CO + H	-176.2	B *	CONSIDER FORWARD
538.	CO + H → CH + O	176.2	C	REVERSE HIGHLY ENDOTHERMIC
547.	CH + O2 → CHO + O	-73.7	C *	CONSIDER FORWARD
548.	CHO + O → CH + O2	73.7	C	REVERSE ENDOTHERMIC
557.	CH + O2 → CO + HO	-160.4	C	FOUR-CENTER REACTION
558.	CO + HO → CH + O2	160.4	C	CH + O2 → CHO + O MORE LIKELY FORWARD REVERSE HIGHLY ENDOTHERMIC
567.	CH + O2 → CO2 + H	-181.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
568.	CO2 + H → CH + O2	181.6	C	
577.	CHS + M → CH + H + M	125.4	L	FORWARD HIGHLY ENDOTHERMIC
578.	CN + H + M → CHS + M	-125.4	C	THIRD ORDER, LOW CONCENTRATIONS REVERSE
587.	CHN + CHO → CH2O + CN	35.9	C	LOW CONCENTRATIONS, STERIC HINDRANCE
588.	CH2O + CN → CHN + CHO	-35.9	C	
597.	CHO + CH2 → CH3 + CN	12.9	B *	CONSIDER FUEL RICH
598.	CH3 + CN → CHN + CH2	-12.9	B *	REVERSE POSSIBLY DURING EARLY STAGES
607.	CHO + CH2O → CH3O + CN	99.9	C	STERIC HINDRANCE, LOW CONCENTRATIONS
608.	CH3O + CN → CHN + CH2O	-99.9	C	BOTH DIRECTIONS

	REACTION	LOG A	B	C	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
							LOG K		
517.	CH + N2O → CN + HNO				NO RATE DATA				
527.	CH + O + M → CHO + M	16. (0.5)	-0.5	0. (5.)	BASED ON T1 (EST) NOTE B	14.8	14.4	14.3	14.3
537.	CH + O → CO + H	* 11.7 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) CHO BASED ON B05 NOTE B	12.9	13.8	13.6	13.6
547.	CH + O2 → CHO + O	* 11.7 (0.5)	0.5	0. (5.)	BASED ON T1 (EST) NOTE B	8.6	12.4	12.7	12.9
557.	CH + O2 → CO + HO				NO RATE DATA				
567.	CH + O2 → CO2 + H				NO RATE DATA				
577.	CN + H + M → CHS + M	16.5 (0.5)	-0.5	0. (5.)	BASED ON T1 (EST) NOTE B	15.8	16.0	16.0	16.0
588.	CH2O + CN → CHN + CHO	11.1 (0.5)	0.7	3. (5.)	BASED ON T1 (EST) NOTE B	10.6	12.9	13.1	13.2
598.	CH3 + CN → CHN + CH2	* 11.0 (0.5)	0.7	3. (5.)	BASED ON T1 (EST) NOTE B	10.5	12.8	13.0	13.1
608.	CHN + CH2O → CH3O + CN				NO RATE DATA				

REACTION	HR	NOTES	COMMENTS
61F. CHN + CH3 → CHN + CN	17.3	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
61R. CHN + CN → CHN + CH3	-17.3	B *	REVERSE POSSIBLE DURING EARLY STAGES
62F. CHN + CO → CHO + CN	105.9	C	FORWARD HIGHLY ENDOTHERMIC
62R. CHO + CN → CHN + CO	-105.9	C	LOW CONCENTRATIONS REVERSE
63F. CHN + H → CH2 + N	119.2	C	FORWARD HIGHLY ENDOTHERMIC
63R. CH2 + N → CHN + H	-119.2	C	LOW CONCENTRATIONS REVERSE
64F. CHN + H → CN + H2	17.0	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
64R. CN + H2 → CHN + H	-17.0	B *	
65F. CHN + HN → CH2 + N2	-31.3	C	LOW CONCENTRATIONS FORWARD
65R. CH2 + N2 → CHN + HN	31.3	B *	CONSIDER REVERSE FOR N-N BREAKING FOUR-CENTER REACTION
66F. CHN + HNO → CH2 + N2O	56.8	C	LOW CONCENTRATIONS BOTH DIRECTIONS
66R. CH2 + N2O → CHN + HNO	-56.8	C	FOUR-CENTER REACTION
67F. CHN + HO2 → CH2O + N2	-93.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
67R. CH2O + N2 → CHN + HNO	93.5	C	
68F. CHN + NO → CHO + HN	56.0	C	FOUR-CENTER REACTION
68R. CHO + HN → CHN + NO	-56.0	C	FORWARD ENDOTHERMIC LOW CONCENTRATIONS REVERSE
69F. CHN + NO → CH2 + NO	71.6	C	FOUR-CENTER REACTION
69R. CH2 + NO → CHN + NO	-71.6	C	FORWARD ENDOTHERMIC CH2 + NO → CH2O + N MORE LIKELY REVERSE
70F. CHN + NO → CH2O + N	65.4	C	NOT LIKELY TO BE ELEMENTARY REACTION
70R. CH2O + N → CHN + NO	-65.4	C	

REACTION	LOG A	B	C	COMMENTS	TEMP. KELVIN 300	1500	2000	2500
					LOG K			
61R. CHN + CN → CHN + CH3	* 11.5 10.5)	0.7	5. (5.)	BASED ON T1 (J-P) GOOD AGRMT W/B78	9.6	13.0	13.3	13.4
62R. CHO + CN → CHN + CO	11.3 10.5)	0.5	0. (5.)	BASED ON T1 (BS7) NOTE B	12.5	12.9	13.0	13.0
63F. CHN + H → CH2 + N				NO RATE DATA				
64R. CN + H2 → CHN + H	* 12.5	0.	5.	SRI ESTIMATE	8.9	11.8	12.0	12.1
65R. CH2 + N2 → CHN + HN	* 14.0	0.	70.	SRI ESTIMATE BASED ON EST ACTIV ENERGY 40. FOR REV	-37.0	3.8	6.4	7.9
66F. CHN + HNO → CH2 + N2O				NO RATE DATA				
67F. CHN + HO2 → CH2O + N2				NO RATE DATA				
68F. CHN + NO → CHO + HN				NO RATE DATA				
69F. CHN + NO → CH2 + NO				NO RATE DATA				
70F. CHN + NO → CH2O + N				NO RATE DATA				

REACTION	HR	NOTES	COMMENTS
71F. CHN + HO → CN + H2O	2.1	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
71R. CN + H2O → CHN + HO	-2.1	B *	
72F. CHN + HO2 → CHO + HNO	-5.8	C	UNLIKELY TO BE ELEMENTARY REACTION
72R. CHO + HNO → CHN + HO2	5.8	C	FOUR-CENTER REACTION STERIC HINDRANCE
73F. CHN + HO2 → CH2 + NO2	62.8	C	FOUR-CENTER REACTION
73R. CH2 + NO2 → CHN + HO2	-62.8	C	FORWARD ENDOTHERMIC LOW CONCENTRATIONS REVERSE
74F. CHN + HO2 → CH2O + NO	-42.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
74R. CH2O + NO → CHN + HO2	42.6	C	
75F. CHN + H2 → CH2 + HN	148.8	C	FOUR-CENTER REACTION
75R. CH2 + HN → CHN + H2	-148.8	C	C-N BOND STRONG REVERSE HIGHLY ENDOTHERMIC
76F. CHN + H2 → CH3 + HN	115.1	C	NOT LIKELY TO BE ELEMENTARY REACTION
76R. CH3 + HN → CHN + H2	-115.1	C	
77F. CHN + H2O → CH2 + HNO	142.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
77R. CH2 + HNO → CHN + H2O	-142.0	C	STERIC HINDRANCE
78F. CHN + H2O → CH2O + HN	89.8	C	NOT LIKELY TO BE ELEMENTARY REACTION
78R. CH2O + HN → CHN + H2O	-89.8	C	
79F. CHN + H2O → CH3 + NO	82.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
79R. CH3 + NO → CHN + H2O	-82.2	C	
80F. CHN + H2O → CH3O + N	163.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
80R. CH3O + N → CHN + H2O	-163.3	C	

REACTION	LOG A	B	C	COMMENTS	TEMP. KELVIN 300	1500	2000	2500
					LOG K			
71R. CHN + HO → CN + H2O	* 11.3 10.5)	0.6	5. (5.)	BASED ON T1 (J-P) NOTE B	9.1	12.5	12.7	12.9
72F. CHN + HO2 → CHO + HNO				NO RATE DATA				
73F. CHN + HO2 → CH2 + NO2				NO RATE DATA				
74F. CHN + HO2 → CH2O + NO				NO RATE DATA				
75F. CHN + H2 → CH2 + HN				NO RATE DATA				
76F. CHN + H2 → CH3 + HN				NO RATE DATA				
77F. CHN + H2O → CH2 + HNO				NO RATE DATA				
78F. CHN + H2O → CH2O + HN				NO RATE DATA				
79F. CHN + H2O → CH3 + NO				NO RATE DATA				
80F. CHN + H2O → CH3O + N				NO RATE DATA				

REACTION	HR	NOTES	COMMENTS	REACTION	LOG A	B	C	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
										LOG K		
81F. CHN + N = CN + HN	46.5	C	LOW CONCENTRATIONS BOTH DIRECTIONS	81R. CN + HN = CHN + N	11.0	0.5	2.	BASED ON T1 (EST)	10.8	12.3	12.-	12.5
81R. CN + HN = CHN + N	-46.5	C			10.5)		(5.)	NOTE B				
82F. CHN + NO = CHO + N2	-46.7	C	FOUR-CENTER REACTION	82F. CHN + NO = CHO + N2				NO RATE DATA				
82R. CHO + N2 = CHN + NO	46.7	C	LOW CONCENTRATIONS FORWARD REVERSE ENDOTHERMIC									
83F. CHN + NO = CN + HNO	72.7	C	FORWARD ENDOTHERMIC	83R. CN + HNO = CHN + NO	11.6	0.5	0.	BASED ON T1 (EST)	12.8	13.2	13.3	13.3
83R. CN + HNO = CHN + NO	-72.7	C	LOW CONCENTRATIONS REVERSE		10.5)		(5.)	NOTE B				
84F. CHN + NO2 = CHO + N2O	-11.8	C	FOUR-CENTER REACTION	84F. CHN + NO2 = CHO + N2O				NO RATE DATA				
84R. CHO + N2O = CHN + NO2	11.8	C	STERIC HINDRANCE									
85F. CHN + O = CHO + N	28.6	B *	CONSIDER BOTH DIRECTIONS FUEL RICH	85R. CHO + N = CHN + O	* 14.0	0.	0.	SRI ESTIMATE	14.0	14.0	14.0	14.0
85R. CHO + N = CHN + O	-28.6	B *										
86F. CHN + O = CN + HO	13.1	B *	CONSIDER BOTH DIRECTIONS FUEL RICH	86R. CN + HO = CHN + O	* 12.5	0.	3.	SRI ESTIMATE	10.3	12.1	12.2	12.2
86R. CN + HO = CHN + O	-13.1	B *	NOTE- CNO POSSIBLE PRODUCT REVERSE									
87F. CHN + O = CO + HN	-30.8	C	NOT LIKELY TO BE ELEMENTARY REACTION	87R. CHN + O = CO + HN				NO RATE DATA				
87R. CO + HN = CHN + O	30.8	C										
88F. CHN + O2 = CHO + NO	-3.4	C	FOUR-CENTER REACTION	88R. CHN + O2 = CHO + NO				NO RATE DATA				
88R. CHO + NO = CHN + O2	3.4	C	CHN AND O2 NOT LIKELY TO SIMULTANEOUSLY									
89F. CHN + O2 = CN + HO2	75.1	C	FORWARD ENDOTHERMIC	89R. CHN + O2 = CN + HO2				NO RATE DATA				
89R. CN + HO2 = CHN + O2	-75.1	C	LOW CONCENTRATIONS REVERSE									
90F. CHN + O2 = CO + HNO	-36.6	C	NOT LIKELY TO BE ELEMENTARY REACTION	90R. CHN + O2 = CO + HNO				NO RATE DATA				
90R. CO + HNO = CHN + O2	36.6	C										

REACTION	HR	NOTES	COMMENTS	REACTION	LOG A	B	C	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
										LOG K		
91F. CHN + O2 = CO2 + HN	-36.2	C	NOT LIKELY TO BE ELEMENTARY REACTION	91R. CHN + O2 = CO2 + HN				NO RATE DATA				
91R. CO2 + HN = CHN + O2	36.2	C										
92F. CHO + M = CO + H + M	19.6	A *	WEAK BOND FORWARD	92R. CO + H + M = CHO + M	* 20.2	-1.5	0.	EST BY METHOD OF ABS	16.5	15.6	15.2	15.1
92R. CO + H + M = CHO + M	-19.6	C	THIRD ORDER REVERSE		10.5)			AGREES W/ EST OF J1				
93F. CHO + CHO = CH2 + CO2	-17.3	C	FOUR-CENTER REACTION	93R. CHO + CHO = CH2 + CO2				NO RATE DATA				
93R. CH2 + CO2 = CHO + CHO	17.3	C	STERIC HINDRANCE									
94F. CHO + CHO = CH2O + CO	-69.9	B *	WEAK BOND FORWARD	94R. CHO + CHO = CH2O + CO	* 11.2	0.5	0.	BASED ON T1 (EST)	12.4	12.8	12.9	12.9
94R. CH2O + CO = CHO + CHO	69.9	C	REVERSE ENDOTHERMIC		10.5)		(5.)	NOTE B				
95F. CHO + CH2 = CH3 + CO	-93.0	B *	WEAK BOND FORWARD	95R. CHO + CH2 = CH3 + CO	* 10.5	0.7	1.	BASED ON T1 (EST)	11.5	12.6	12.7	12.8
95R. CH3 + CO = CHO + CH2	93.0	C	REVERSE ENDOTHERMIC		10.5)		(5.)	NOTE B				
96F. CHO + CH2O = CH3 + CO2	-40.3	C	NOT LIKELY TO BE ELEMENTARY REACTION	96R. CHO + CH2O = CH3 + CO2				NO RATE DATA				
96R. CH3 + CO2 = CHO + CH2O	40.3	C										
97F. CHO + CH2O = CH3O + CO	-5.9	C	LARGE MOLECULES, LOW CONCENTRATIONS	97R. CHO + CH2O = CH3O + CO				NO RATE DATA				
97R. CH3O + CO = CHO + CH2O	5.9	C	LIKELY TO BE UNIMPORTANT									
98F. CHO + CH3 = CH2 + CH2O	23.0	B *	RETAIN FORWARD FOR COMPARISON WITH	98R. CHO + CH2O = CHO + CH3	* 10.5	0.5	5.	BASED ON T1 (EST)	7.4	11.2	11.5	11.7
98R. CH2 + CH2O = CHO + CH3	-23.0	C	CHO + CH3 = CH4 + CO LOW CONCENTRATIONS REVERSE		10.5)		(5.)	NOTE A				
99F. CHO + CH3 = CH4 + CO	-88.6	B *	WEAK BOND FORWARD	99R. CHO + CH3 = CH4 + CO	* 11.5	0.5	0.	BASED ON T1 (EST)	12.7	13.1	13.2	13.2
99R. CH4 + CO = CHO + CH3	88.6	C	REVERSE ENDOTHERMIC		10.5)		(5.)	NOTE B				
100F. CHO + CH3O = CH2O + CH2O	-64.0	C	LARGE MOLECULES, LOW CONCENTRATIONS	100R. CHO + CH3O = CH2O + CH2O				NO RATE DATA				
100R. CH2O + CH2O = CHO + CH3O	64.0	C	LIKELY TO BE SLOW									

	REACTION	HR	NOTES	COMMENTS
101F.	CHO + CH3O = CH4 + CO2	-123.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
101R.	CH4 + CO2 = CHO + CH3O	123.0	C	
102F.	CHO + CH4 = CH2 + CH3O	105.7	C	NOT LIKELY TO BE ELEMENTARY REACTION
102R.	CH2 + CH3O = CHO + CH4	-105.7	C	
103F.	CHO + CH4 = CH2O + CH3	18.6	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
103R.	CH2O + CH3 = CHO + CH4	-18.6	B *	
104F.	CHO + H = CH2 + O	90.6	C	FORWARD ENDOTHERMIC
104R.	CH2 + O = CHO + H	-90.6	B *	CONSIDER REVERSE
105F.	CHO + H + M = CH2O + M	-89.5	C	THIRD ORDER FORWARD
105R.	CH2O + M = CHO + H + M	89.5	C	REVERSE ENDOTHERMIC
106F.	CHO + H = CO + H2	-88.9	A *	CONSIDER FORWARD FOR CHO BREAKDOWN
106R.	CO + H2 = CHO + H	88.9	C	REVERSE ENDOTHERMIC
107F.	CHO + HN = CH2 + NO	15.4	C	FOUR-CENTER REACTION
107R.	CH2 + NO = CHO + HN	-15.4	C	LOW CONCENTRATIONS BOTH DIRECTIONS
108F.	CHO + HN = CH2O + N	-10.6	C	LOW CONCENTRATIONS BOTH DIRECTIONS
108R.	CH2O + N = CHO + HN	10.6	C	
109F.	CHO + HN = CN + H2O	-53.9	C	NOT LIKELY TO BE ELEMENTARY REACTION
109R.	CN + H2O = CHO + HN	53.9	C	
110F.	CHO + HNO = CH2 + NO2	68.6	C	FOUR-CENTER REACTION
110R.	CH2 + NO2 = CHO + HNO	-68.6	C	ENDOTHERMIC FORWARD
				LOW CONCENTRATIONS REVERSEHO AND CH2O

	REACTION	LOG A	B	C	COMMENTS	300	TEMP. KELVIN 1500	2000	2500
							LOG K		
101F.	CHO + CH3O = CH4 + CO2				NO RATE DATA				
102F.	CHO + CH4 = CH2 + CH3O				NO RATE DATA				
103R.	CH2O + CH3 = CHO + CH4	* 10.0	0.5	4.	BASED ON T1 (EST)	6.9	10.7	11.0	11.2
		10.5)		(5.)	NOTE A				
	CH2 + O = CHO + H	* 11.7	0.5	4.	BASED ON T1 (EST)	10.0	12.7	12.9	13.0
		10.5)		(5.)	NOTE B				
105R.	CH2O + M = CHO + H + M	17.5	0.	87.	BASED ON T1 (EST)	-65.9	6.8	8.0	9.9
		10.5)		(5.)	NOTE B				
106F.	CHO + H = CO + H2	* 12.2	0.5	0.	BASED ON T1 (EST)	13.4	13.8	13.9	13.9
		10.5)		(5.)	NOTE A				
107F.	CHO + HN = CH2 + NO				NO RATE DATA				
108F.	CHO + HN = CH2O + N				NO RATE DATA				
109F.	CHO + HN = CN + H2O				NO RATE DATA				
110F.	CHO + HNO = CH2 + NO2				NO RATE DATA				

	REACTION	HR	NOTES	COMMENTS
111F.	CHO + HNO = CH2O + NO	-36.8	C	UNIMPORTANT PATH BETWEEN CHO AND CH2O
111R.	CH2O + NO = CHO + HNO	36.8	C	BETWEEN HNO AND NO
112F.	CHO + HO = CH2 + O2	74.9	C	FOUR CENTER REACTION
112R.	CH2 + O2 = CHO + HO	-74.9	C	CHO + HO = CO + H2O FASTER THAN FORWARD
				CH2 + O2 = CH2O + O FASTER THAN REVERSE
113F.	CHO + HO = CH2O + O	16.8	C	CHO + HO = CO + H2O FASTER THAN FORWARD
113R.	CH2O + O = CHO + HO	-16.8	A *	CONSIDER REVERSE FOR CH2O BREAKDOWN
114F.	CHO + HO = CO + H2O	-103.8	A *	CONSIDER FORWARD FOR CHO BREAKDOWN
114R.	CO + H2O = CHO + HO	103.8	C	REVERSE HIGHLY ENDOTHERMIC
115F.	CHO + HO = CO2 + H2	-110.0	C	FOUR-CENTER REACTION
115R.	CO2 + H2 = CHO + HO	110.0	C	CHO + HO = CO + H2O FASTER THAN FORWARD
				REVERSE HIGHLY ENDOTHERMIC
116F.	CHO + HO2 = CH2O + O2	-39.1	B *	CONSIDER BOTH DIRECTIONS
116R.	CH2O + O2 = CHO + HO2	39.1	B *	
117F.	CHO + HO2 = CO2 + H2O	-165.1	C	FOUR-CENTER REACTION
117R.	CO2 + H2O = CHO + HO2	165.1	C	CHO + HO2 = CH2O + O2 FASTER THAN FWD
				REVERSE HIGHLY ENDOTHERMIC
118F.	CHO + H2 = CH2 + HO	92.8	C	FOUR-CENTER REACTION
118R.	CH2 + HO = CHO + H2	-92.8	C	FORWARD ENDOTHERMIC
				CH3 + O AND CH2O + O MORE LIKELY
119F.	CHO + H2 = CH2O + H	19.0	B *	PRODUCTS FROM REVERSE
119R.	CH2O + H = CHO + H2	-19.0	A *	CONSIDER BOTH DIRECTIONS
				REVERSE MORE LIKELY TO BE IMPORTANT
				CH2O BREAKDOWN
120F.	CHO + H2 = CH3 + O	86.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
120R.	CH3 + O = CHO + H2	-86.5	C	

	REACTION	LOG A	B	C	COMMENTS	300	TEMP. KELVIN 1500	2000	2500
							LOG K		
111F.	CHO + HNO = CH2O + NO	11.5	0.5	0.	BASED ON T1 (EST)	12.7	13.1	13.2	13.2
		10.5)		(5.)	NOTE B				
112F.	CHO + HO = CH2 + O2				NO RATE DATA				
113R.	CH2O + O = CHO + HO	* 11.0	1.	3.5	BASED ON O22,H33,H27	10.9	13.7	13.9	14.1
		10.3)		(2.)	FIT MODIF ARRHENIUS				
					300-2600K				
114F.	CHO + HO = CO + H2O	* 10.5	1.	0.	SRI ESTIMATE	13.0	13.7	13.8	13.9
115F.	CHO + HO = CO2 + H2				NO RATE DATA				
116F.	CHO + HO2 = CH2O + O2	* 14.0	0.	3.	SRI ESTIMATE	11.8	13.6	13.7	13.7
117F.	CHO + HO2 = CO2 + H2O				NO RATE DATA				
118F.	CHO + H2 = CH2 + HO				NO RATE DATA				
119R.	CH2O + H = CHO + H2	* 10.1	1.	3.2	BASED ON H40	10.2	12.8	13.1	13.2
		10.5)			USING B=1 FOR EXTRAP				
					NO DATA ABOVE 1000K				
120F.	CHO + H2 = CH3 + O				NO RATE DATA				

REACTION	HR	NOTES	COMMENTS
121F. CHO + H2 + M = CH3O + M	-6.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
121R. CH3O + M = CHO + H2 + M	6.5	C	
122F. CHO + H2O = CH2 + HO2	147.8	C	FOUR-CENTER REACTION
122R. CH2 + HO2 = CHO + H2O	-147.8	C	FORWARD HIGHLY ENDOTHERMIC
			CH2 + HO2 = CH3 + O2 FASTER THAN REVERSE
123F. CHO + H2O = CH2O + HO	93.8	C	CHO + M = CO + H + M FASTER THAN FORWARD
123R. CH2O + HO = CHO + H2O	-93.8	A *	CONSIDER REVERSE FOR CH2O BREAKDOWN
124F. CHO + H2O = CH3 + O2	89.7	C	NOT LIKELY TO BE ELEMENTARY REACTION
124R. CH3 + O2 = CHO + H2O	-89.7	C	
125F. CHO + H2O = CH3O + O	114.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
125R. CH3O + O = CHO + H2O	-114.6	C	
126F. CHO + N = CN + HO	-9.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
126R. CN + HO = CHO + N	9.5	C	
127F. CHO + N = CO + HN	-50.6	B *	CONSIDER FORWARD
127R. CO + HN = CHO + N	50.6	C	REVERSE ENDOTHERMIC
128F. CHO + NO = CN + HO2	78.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
128R. CN + HO2 = CHO + NO	-78.5	C	
129F. CHO + NO = CO + HNO	-33.2	B *	CONSIDER BOTH DIRECTIONS
129R. CO + HNO = CHO + NO	33.2	B *	PROBABLY NOT MAJOR IMPORTANCE
130F. CHO + NO = CO2 + HN	-32.7	C	FOUR-CENTER REACTION
130R. CO2 + HN = CHO + NO	32.7	C	CHO + NO = CO + HNO FASTER THAN FORWARD
			REVERSE MINOR

REACTION	LOG A	B	C	COMMENTS	300	TEMP. KELVIN 1500	2000	2500
						LOG K		
121F. CHO + H2 = M + CH3O + M				NO RATE DATA				
122F. CHO + H2O = CH2 + HO2				NO RATE DATA				
123R. CH2O + HO = CHO + H2O	* 10.5 10.5)	1.	0. (5.)	BASED ON M30,P13,H2 A=13.0 AT 300 (M30) A=13.8 AT 1500 (H2) A=13.4 AT 1800 (P13)	13.0	13.7	13.1	13.3
124F. CHO + H2O = CH3 + O2				NO RATE DATA				
125F. CHO + H2O = CH3O + O				NO RATE DATA				
126F. CHO + N = CN + HO				NO RATE DATA				
127F. CHO + N = CO + HN	* 11.3 10.5)	0.5	2. (5.)	BASED ON T1 (E57) NOTE B	11.1	12.6	12.7	12.8
128F. CHO + NO = CN + HO2				NO RATE DATA				
129F. CHO + NO = CO + HNO	* 11.3 10.5)	0.5	2. (5.)	BASED ON T1 (E57) NOTE B	11.1	12.6	12.7	12.8
130F. CHO + NO = CO2 + HN				NO RATE DATA				

REACTION	HR	NOTES	COMMENTS
131F. CHO + NO2 = CO2 + HNO	-85.9	C	FOUR-CENTER
131R. CO2 + HNO = CHO + NO2	85.9	C	STERIC HINDRANCE
132F. CHO + N2 = CN + HNO	119.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
132R. CN + HNO = CHO + N2	-119.6	C	
133F. CHO + O = CO + HO	-86.8	A *	CONSIDER FORWARD FOR CHO BREAKDOWN
133R. CO + HO = CHO + O	86.8	C	REVERSE ENDOTHERMIC
134F. CHO + O = CO2 + H	-107.9	B *	CONSIDER FORWARD
134R. CO2 + H = CHO + O	107.9	C	REVERSE HIGHLY ENDOTHERMIC
135F. CHO + O2 = CO + HO2	-39.8	B *	CONSIDER BOTH DIRECTIONS
135R. CO + HO2 = CHO + O2	39.8	B *	FORWARD FOR CHO BREAKDOWN
			REVERSE PROBABLY LESS IMPORTANT
136F. CHO + O2 = CO2 + HO	-92.2	C	FOUR-CENTER REACTION
136R. CO2 + HO = CHO + O2	92.2	C	CHO + O2 = CO + HO2 FASTER THAN FORWARD
			REVERSE ENDOTHERMIC
137F. CH2 + CH2O = CH3 + CO	-111.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
137R. CH3 + CO = CH2 + CH2O	111.6	C	
138F. CH2 + CH3O = CH2O + CH3	-87.0	C	LARGE MOLECULES, LOW CONCENTRATIONS
138R. CH2O + CH3 = CH2 + CH3O	87.0	C	REVERSE ENDOTHERMIC
			LIKELY TO BE UNIMPORTANT
139F. CH2 + CH3 = CH3 + CH3	-6.6	B *	CONSIDER BOTH DIRECTIONS FUEL RICH
139R. CH3 + CH3 = CH2 + CH3	6.6	B *	MAY BE IMPORTANT EARLY STAGES
140F. CH2 + CO2 = CH2O + CO	-52.7	C	FORWARD RX UNIMPORTANT FOR CH2 OR CO2
140R. CH2O + CO = CH2 + CO2	52.7	C	REVERSE ENDOTHERMIC

REACTION	LOG A	B	C	COMMENTS	300	TEMP. KELVIN 1500	2000	2500
						LOG K		
131F. CHO + NO2 = CO2 + HNO				NO RATE DATA				
132F. CHO + N2 = CN + HNO				NO RATE DATA				
133F. CHO + O = CO + HO	* 11.5	1.	0.5	SRI ESTIMATE	13.6	14.6	14.7	14.9
134F. CHO + O = CO2 + H	* 11.5	0.	0.	SRI ESTIMATE	11.5	11.5	11.5	11.5
135F. CHO + O2 = CO + HO2	* 12.2	0.	7.	SRI ESTIMATE	7.1	11.2	11.6	11.8
136F. CHO + O2 = CO2 + HO				NO RATE DATA				
137F. CH2 + CH2O = CH3 + CO				NO RATE DATA				
138F. CH2 + CH3O = CH2O + CH3				NO RATE DATA				
139F. CH2 + CH3 = CH3 + CH3	* 12.1 10.5)	0.7	20. (5.)	BASED ON T1 (J-P) NOTE B	-0.7	11.5	12.2	12.7
140F. CH2 + CO2 = CH2O + CO				NO RATE DATA				

	REACTION	HR	NOTES	COMMENTS	REACTION	LOG A	B	E	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K							
161F.	CH2 + H + M = CH3 + M	-112.5	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD	161F. CH2 + H + M = CH3 + M				NO RATE DATA				
161R.	CH3 + M = CH2 + H + M	112.5	C	REVERSE HIGHLY ENDOTHERMIC									
162F.	CH2 + HN = CH3 + N	-33.6	C	LOW CONCENTRATIONS BOTH DIRECTIONS	162F. CH2 + HN = CH3 + N				NO RATE DATA				
162R.	CH3 + N = CH2 + HN	33.6	C										
163F.	CH2 + HNO = CH2O + HN	-52.2	C	CH2 + HNO = CH3 + NO MORE LIKELY FORWARD	163F. CH2 + HNO = CH2O + HN				NO RATE DATA				
163R.	CH2O + HN = CH2 + HNO	52.2	C	REVERSE ENDOTHERMIC									
164F.	CH2 + HNO = CH3 + NO	-59.8	C	FORWARD RX UNIMPORTANT FOR CH2 OR HNO	164F. CH2 + HNO = CH3 + NO	11.8 10.5)	0.5	0. (5.)	BASED ON TI (EST) NOTE B	13.0	13.4	13.5	13.5
164R.	CH3 + NO = CH2 + HNO	59.8	C	REVERSE ENDOTHERMIC									
165F.	CH2 + HNO = CH3O + N	1.2	C	NOT LIKELY TO BE ELEMENTARY REACTION	165F. CH2 + HNO = CH3O + N				NO RATE DATA				
165R.	CH3O + N = CH2 + HNO	-1.2	C										
166F.	CH2 + HO = CH2O + H	-73.8	B *	CONSIDER FORWARD	166F. CH2 + HO = CH2O + H	* 13.	0.	5.	ESTIMATED NO RATE DATA	9.4	12.3	12.5	12.6
166R.	CH2O + H = CH2 + HO	73.8	C	REVERSE ENDOTHERMIC									
167F.	CH2 + HO = CH3 + O	-6.2	B *	CONSIDER BOTH DIRECTIONS	167F. CH2 + HO = CH3 + O	* 11.7 10.5)	0.5	6. (5.)	BASED ON TI (EST) NOTE B	8.6	12.4	12.7	12.9
167R.	CH3 + O = CH2 + HO	6.2	B *	REVERSE FOR CH3 BREAKDOWN									
168F.	CH2 + HO + M = CH3O + M	-99.3	C	CH2O + H OR CH3 + O MORE LIKELY PRODUCTS	168F. CH2 + HO + M = CH3O + M				NO RATE DATA				
168R.	CH3O + M = CH2 + HO + M	99.3	C	REVERSE ENDOTHERMIC									
169F.	CH2 + HO2 = CH2O + HO	-114.0	C	CH2 + HO2 = CH3 + O2 MORE LIKELY FORWARD	169F. CH2 + HO2 = CH2O + HO				NO RATE DATA				
169R.	CH2O + HO = CH2 + HO2	114.0	C	REVERSE HIGHLY ENDOTHERMIC									
170F.	CH2 + HO2 = CH3 + O2	-62.2	B *	CONSIDER FORWARD	170R. CH3 + O2 = CH2 + HO2	* 12.5	0.	49.5	SRI ESTIMATE BASED ON EST ACTIV ENERGY T. FOR REV	-38.1	2.9	6.9	8.9
170R.	CH3 + O2 = CH2 + HO2	62.2	C	REVERSE ENDOTHERMIC									

	REACTION	HR	NOTES	COMMENTS	REACTION	LOG A	B	E	COMMENTS	TEMP, KELVIN 300	1500	2000	2500
						LOG K							
171F.	CH2 + HO2 = CH3O + O	-33.2	C	NOT LIKELY TO BE ELEMENTARY REACTION	171F. CH2 + HO2 = CH3O + O				NO RATE DATA				
171R.	CH3O + O = CH2 + HO2	33.2	C										
172F.	CH2 + H2 = CH3 + H	-4.1	B *	CONSIDER BOTH DIRECTIONS	172F. CH2 + H2 = CH3 + H	* 12.5	0.	7.	SRI ESTIMATE	7.4	11.5	11.7	11.9
172R.	CH3 + H = CH2 + H2	4.1	A *	REVERSE FOR CH3 BREAKDOWN FUEL RICH									
173F.	CH2 + H2 + M = CH4 + M	-112.2	C	NOT LIKELY TO BE ELEMENTARY REACTION	173F. CH2 + H2 + M = CH4 + M				NO RATE DATA				
173R.	CH4 + M = CH2 + H2 + M	112.2	C										
174F.	CH2 + H2O = CH2O + H2	-58.9	C	NOT LIKELY TO BE ELEMENTARY REACTION	174F. CH2 + H2O = CH2O + H2				NO RATE DATA				
174R.	CH2O + H2 = CH2 + H2O	58.9	C	MIGHT BE FOUR-CENTER STERICALLY HINDERED									
175F.	CH2 + H2O = CH3 + HO	10.8	B *	CONSIDER BOTH DIRECTIONS	175R. CH3 + HO = CH2 + H2O	* 10.8 10.5)	0.7	2. (5.)	BASED ON TI (EST) NOTE A	11.1	12.7	12.9	13.0
175R.	CH3 + HO = CH2 + H2O	-10.8	A *	REVERSE FOR CH3 BREAKDOWN									
176F.	CH2 + H2O = CH3O + H	24.0	C	NOT LIKELY TO BE ELEMENTARY REACTION	176F. CH2 + H2O = CH3O + H				NO RATE DATA				
176R.	CH3O + H = CH2 + H2O	-24.0	C										
177F.	CH2 + H2O = CH4 + O	9.0	C	NOT LIKELY TO BE ELEMENTARY REACTION	177F. CH2 + H2O = CH4 + O				NO RATE DATA				
177R.	CH4 + O = CH2 + H2O	-9.0	C										
178F.	CH2 + N = CN + H2	-102.3	C	NOT LIKELY TO BE ELEMENTARY REACTION	178F. CH2 + N = CN + H2				NO RATE DATA				
178R.	CN + H2 = CH2 + N	102.3	C										
179F.	CH2 + NO = CH2O + N	-26.0	B *	CONSIDER FORWARD FUEL RICH	179F. CH2 + NO = CH2O + N	* 12.2	0.	7.	SRI ESTIMATE	7.1	11.2	11.4	11.6
179R.	CH2O + N = CH2 + NO	26.0	C	REVERSE NOT LIKELY TO BE IMPORTANT									
180F.	CH2 + NO = CN + H2O	-69.3	C	NOT LIKELY TO BE ELEMENTARY REACTION	180F. CH2 + NO = CN + H2O				NO RATE DATA				
180R.	CN + H2O = CH2 + NO	69.3	C										

REACTION	HR	NOTES	COMMENTS
161F. CH2 + NO2 = CH2O + NO	-105.4	C	LOW CONCENTRATIONS FORWARD
161R. CH2O + NO = CH2 + NO2	105.4	C	REVERSE HIGHLY ENDOTHERMIC
162F. CH2 + N2O = CH2O + N2	-140.2	C	LOW CONCENTRATIONS FORWARD
162R. CH2O + N2 = CH2 + N2O	140.2	C	REVERSE HIGHLY ENDOTHERMIC
163F. CH2 + O + M = CH2O + M	-180.1	C	THIRD ORDER FORWARD
163R. CH2O + M = CH2 + O + M	180.1	C	REVERSE HIGHLY ENDOTHERMIC
164F. CH2 + O = CO + H2	-179.5	C	NOT LIKELY TO BE ELEMENTARY REACTION
164R. CO + H2 = CH2 + O	179.5	C	
165F. CH2 + O2 = CH2O + O	-58.1	B *	CONSIDER FORWARD
165R. CH2O + O = CH2 + O2	58.1	C	REVERSE ENDOTHERMIC
166F. CH2 + O2 = CO + H2O	-178.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
166R. CO + H2O = CH2 + O2	178.6	C	
167F. CH2 + O2 = CO2 + H2	-184.9	C	NOT LIKELY TO BE ELEMENTARY REACTION
167R. CO2 + H2 = CH2 + O2	184.9	C	
168F. CH2O + M = CO + H2 + M	0.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
168R. CO + H2 + M = CH2O + M	-0.6	C	
169F. CH2O + CH2O = CH4 + CO2	-59.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
169R. CH4 + CO2 = CH2O + CH2O	59.0	C	
170F. CH2O + CH4 = CH3 + CH3O	82.7	C	FORWARD ENDOTHERMIC
170R. CH3 + CH3O = CH2O + CH4	-82.7	C	LARGE MOLECULES LOW CONCENTRATIONS REA

REACTION	LOG A	B	C	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
						LOG K		
161F. CH2 + NO2 = CH2O + NO				NO RATE DATA				
162F. CH2 + N2O = CH2O + N2				NO RATE DATA				
163F. CH2 + O + M = CH2O + M				NO RATE DATA				
164F. CH2 + O = CO + H2				NO RATE DATA				
165F. CH2 + O2 = CH2O + O	* 11.7 10.5)	0.5	7. 1.5.)	BASED ON 31 (85): NOTE B	7.8	12.3	12.6	12.8
166F. CH2 + O2 = CO + H2O				NO RATE DATA				
167F. CH2 + O2 = CO2 + H2				NO RATE DATA				
168F. CH2O + M = CO + H2 + M				NO RATE DATA				
169F. CH2O + CH2O = CH4 + CO2				NO RATE DATA				
170F. CH2O + CH4 = CH3 + CH3O				NO RATE DATA				

REACTION	HR	NOTES	COMMENTS
171F. CH2O + H = CH3 + O	67.6	C	FORWARD ENDOTHERMIC
171R. CH3 + O = CH2O + H	-67.6	A *	CONSIDER REVERSE FOR CH3 BREAKDOWN
172F. CH2O + H + M = CH3O + M	-25.5	B *	CONSIDER BOTH DIRECTIONS
172R. CH3O + M = CH2O + H + M	25.5	B *	REVERSE MAY BE IMPORTANT CH3O BREAKDOWN
173F. CH2O + HN = CH3 + NO	-7.6	C	FOUR-CENTER, STERIC HINDRANCE
173R. CH3 + NO = CH2O + HN	7.6	C	
174F. CH2O + HN = CH3O + N	53.4	C	FORWARD ENDOTHERMIC
174R. CH3O + N = CH2O + HN	-53.4	B *	CONSIDER REVERSE FOR CH3O BREAKDOWN PROBABLY MINOR
175F. CH2O + HNO = CH3 + NO2	45.6	C	FOUR-CENTER, STERIC HINDRANCE
175R. CH3 + NO2 = CH2O + HNO	-45.6	C	
176F. CH2O + HNO = CH3O + NO	27.2	C	LOW CONCENTRATIONS BOTH DIRECTIONS
176R. CH3O + NO = CH2O + HNO	-27.2	C	
177F. CH2O + HO = CH3 + O2	51.8	C	FORWARD ENDOTHERMIC
177R. CH3 + O2 = CH2O + HO	-51.8	B *	CONSIDER REVERSE FOR CH3 BREAKDOWN FOUR-CENTER REACTION
178F. CH2O + HO = CH3O + O	80.8	C	FORWARD ENDOTHERMIC
178R. CH3O + O = CH2O + HO	-80.8	B *	CONSIDER REVERSE FOR CH3O BREAKDOWN
179F. CH2O + HO2 = CH3O + O2	24.9	C	LOW CONCENTRATIONS FORWARD
179R. CH3O + O2 = CH2O + HO2	-24.9	B *	CONSIDER REVERSE FOR CH3O BREAKDOWN
180F. CH2O + H2 = CH3 + HO	69.7	C	FOUR-CENTER REACTION
180R. CH3 + HO = CH2O + H2	-69.7	C	FORWARD ENDOTHERMIC CH3 + HO = CH4 + O AND CH3 + HO = CH2 + H2O MORE LIKELY REVERSE

REACTION	LOG A	B	C	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
						LOG K		
171F. CH3 + O = CH2O + H	* 13.7 13.3)	0.	0.	BASED ON D22,M25,P13 K=13.7 AT 300 (M25) K=13.8 AT 1500 (P13) K=13.8 AT 2000 (D22)	13.7	13.7	13.7	13.7
172F. CH3O + M = CH2O + H + M	* 40.6	-7.5	22.6	SRI ESTIMATE BASED ON HINSHELWOOD -LINDEMAN THEORY	5.6	13.5	13.6	17.1
173F. CH2O + HN = CH3 + NO				NO RATE DATA				
174F. CH3O + N = CH2O + HN	* 14.0	0.	0.	SRI ESTIMATE	14.0	14.0	14.0	14.0
175F. CH2O + HNO = CH3 + NO2				NO RATE DATA				
176F. CH2O + HNO = CH3O + NO				NO RATE DATA				
177F. CH3 + O2 = CH2O + HO	* 13.5 13.5)	0.	25. 110.)	BASED ON B45,B46,B76 W/ EST ACTIV ENERGY	11.1	13.6	13.3	13.8
178F. CH3O + O = CH2O + HO	* 14.0	0.	0.	SRI ESTIMATE	14.0	14.0	14.0	14.0
179F. CH3O + O2 = CH2O + HO2	* 12.0	0.	0.	SRI ESTIMATE	7.8	11.1	11.3	11.5
180F. CH2O + H2 = CH3 + HO				NO RATE DATA				

REACTION	HR	NOTES	COMMENTS
181F. $CH2O + HZ \rightarrow CH3O + H$	83.0	C	FORWARD ENDOTHERMIC
181R. $CH3O + H \rightarrow CH2O + HZ$	-83.0	B *	CONSIDER REVERSE FOR CH3O BREAKDOWN
182F. $CH2O + HZ \rightarrow CH4 + O$	67.9	C	NOT LIKELY TO BE ELEMENTARY REACTION
182R. $CH4 + O \rightarrow CH2O + HZ$	-67.9	C	
183F. $CH2O + HZO \rightarrow CH3 + HO2$	126.8	C	FOUR-CENTER REACTION
183R. $CH3 + HO2 \rightarrow CH2O + HZO$	-126.8	C	STERIC HINDRANCE
184F. $CH2O + HZO \rightarrow CH3O + HO$	97.8	C	FORWARD ENDOTHERMIC
184R. $CH3O + HO \rightarrow CH2O + HZO$	-97.8	A *	CONSIDER REVERSE FOR CH3O BREAKDOWN
185F. $CH2O + HZO \rightarrow CH4 + O2$	67.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
185R. $CH4 + O2 \rightarrow CH2O + HZO$	-67.0	C	
186F. $CH2O + N \rightarrow CN + HZO$	-43.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
186R. $CN + HZO \rightarrow CH2O + N$	43.3	C	
187F. $CH2O + O \rightarrow CO + HZO$	-120.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
187R. $CO + HZO \rightarrow CH2O + O$	120.6	C	
188F. $CH2O + O \rightarrow CO2 + HZ$	-126.8	C	NOT LIKELY TO BE ELEMENTARY REACTION
188R. $CO2 + HZ \rightarrow CH2O + O$	126.8	C	
189F. $CH2O + O2 \rightarrow CO2 + HZO$	-126.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
189R. $CO2 + HZO \rightarrow CH2O + O2$	126.0	C	
190F. $CH3 + CO2 \rightarrow CH3O + CO$	36.4	C	LARGE MOLECULES
190R. $CH3O + CO \rightarrow CH3 + CO2$	-36.4	C	LIKELY TO BE UNIMPORTANT

REACTION	LOG A	N	E	COMMENTS	300	TEMP, K/E+3/R 1500	2000	2500
						LOG K		
181F. $CH3O + H \rightarrow CH2O + HZ$	* 14.0	0.	0.	SRI ESTIMATE	14.0	14.0	14.0	14.0
182F. $CH2O + HZ \rightarrow CH4 + O$				NO RATE DATA				
183F. $CH2O + HZO \rightarrow CH3 + HO2$				NO RATE DATA				
184F. $CH3O + HO \rightarrow CH2O + HZO$	* 13.5	0.	0.	SRI ESTIMATE	13.5	13.5	13.5	13.5
185F. $CH2O + HZO \rightarrow CH4 + O2$				NO RATE DATA				
186F. $CH2O + N \rightarrow CN + HZO$				NO RATE DATA				
187F. $CH2O + O \rightarrow CO + HZO$				NO RATE DATA				
188F. $CH2O + O \rightarrow CO2 + HZ$				NO RATE DATA				
189F. $CH2O + O2 \rightarrow CO2 + HZO$				NO RATE DATA				
190F. $CH3 + CO2 \rightarrow CH3O + CO$				NO RATE DATA				

REACTION	HR	NOTES	COMMENTS
191F. $CH3 + H + M \rightarrow CH4 + M$	-108.2	B *	MAY BE IMPORTANT EARLY STAGES
191R. $CH4 + M \rightarrow CH3 + H + M$	108.2	B *	
192F. $CH3 + HN \rightarrow CH4 + N$	-29.2	C	LOW CONCENTRATIONS
192R. $CH4 + N \rightarrow CH3 + HN$	29.2	C	
193F. $CH3 + HNO \rightarrow CH3O + HN$	34.8	C	LOW CONCENTRATIONS
193R. $CH3O + HN \rightarrow CH3 + HNO$	-34.8	C	
194F. $CH3 + HNO \rightarrow CH4 + NO$	-55.4	C	LOW CONCENTRATIONS FORWARD
194R. $CH4 + NO \rightarrow CH3 + HNO$	55.4	C	REVERSE ENDOTHERMIC
195F. $CH3 + HO \rightarrow CH3O + H$	13.2	B *	CONSIDER BOTH DIRECTIONS FOR RULE CH3O
195R. $CH3O + H \rightarrow CH3 + HO$	-13.2	B *	
196F. $CH3 + HO \rightarrow CH4 + O$	-1.8	A *	CONSIDER BOTH DIRECTIONS
196R. $CH4 + O \rightarrow CH3 + HO$	1.8	A *	RULE IN INITIAL CH4 BREAKDOWN
197F. $CH3 + HO2 \rightarrow CH3O + HO$	-27.0	C	CH3 + HO2 → CH4 + O2 MORE LIKELY FORWARD
197R. $CH3O + HO \rightarrow CH3 + HO2$	27.0	C	CH3O + HO → CH2O + HZO MORE LIKELY REV
198F. $CH3 + HO2 \rightarrow CH4 + O2$	-57.8	B *	CONSIDER FORWARD
198R. $CH4 + O2 \rightarrow CH3 + HO2$	57.8	C	REVERSE ENDOTHERMIC
199F. $CH3 + H2 \rightarrow CH4 + H$	0.3	A *	CONSIDER BOTH DIRECTIONS
199R. $CH4 + H \rightarrow CH3 + H2$	-0.3	A *	RULE IN INITIAL CH4 BREAKDOWN
200F. $CH3 + H2O \rightarrow CH3O + H2$	28.1	C	NOT LIKELY TO BE ELEMENTARY REACTION
200R. $CH3O + H2 \rightarrow CH3 + H2O$	-28.1	C	

REACTION	LOG A	N	E	COMMENTS	300	TEMP, K/E+3/R 1500	2000	2500
						LOG K		
191F. $CH4 + M \rightarrow CH3 + H + M$	* 17.0 (16.9)	0.	87.5 (2.)	BASED ON H2Z RECENT EXPERIMENT	-55.4	5.8	7.7	8.7
192F. $CH3 + HN \rightarrow CH4 + N$				NO RATE DATA				
193F. $CH3 + HNO \rightarrow CH3O + HN$				NO RATE DATA				
194F. $CH3 + HNO \rightarrow CH4 + NO$	11.7 (10.5)	0.5	0. (5.)	BASED ON T1 (85T) NOTE B	12.9	13.3	13.4	13.4
195F. $CH3 + HO \rightarrow CH3O + H$	* 12.8	0.	0.	COMPARES W/ 155A NO RATE DATA	12.8	12.8	12.8	12.8
196F. $CH4 + O \rightarrow CH3 + HO$	* 13.5 (10.2)	0.	9. (2.)	BASED ON H2S CBET EXAL 350/2000K	9.7	12.0	12.3	12.3
197F. $CH3 + HO2 \rightarrow CH3O + HO$				NO RATE DATA				
198F. $CH3 + HO2 \rightarrow CH4 + O2$	* 11.0 (10.5)	0.5	9. (5.)	BASED ON T1 (85T)	7.9	11.7	12.0	12.2
199F. $CH4 + H \rightarrow CH3 + H2$	* 13.8 (10.3)	0.	11.9 (0.5)	BASED ON REFS 866,834,51,133,863	5.1	12.1	12.5	12.8
200F. $CH3 + H2O \rightarrow CH3O + H2$				NO RATE DATA				

REACTION	KB	NOTES	COMMENTS
201F. $CH3 + HNO \rightarrow CH4 + NO$	19.2	A B	CONSIDER BOTH DIRECTIONS
201R. $CH4 + NO \rightarrow CH3 + HNO$	-19.2	A B	MOST IN INITIAL CH4 BREAKDOWN
202F. $CH3 + NO \rightarrow CH3O + N$	61.8	C	FORWARD ENDOTHERMIC
202R. $CH3O + N \rightarrow CH3 + NO$	-61.8	C	$CH3O + N \rightarrow CH2O + HN$ MORE LIKELY REVERSE
203F. $CH3 + NO2 \rightarrow CH3O + NO$	-18.3	C	LOW CONCENTRATIONS BOTH DIRECTIONS
203R. $CH3O + NO \rightarrow CH3 + NO2$	18.3	C	
204F. $CH3 + N2O \rightarrow CH3O + N2$	-93.2	C	LARGE MOLECULES STERIC HINDRANCE FORWARD
204R. $CH3O + N2 \rightarrow CH3 + N2O$	93.2	C	REVERSE ENDOTHERMIC
205F. $CH3 + O + M \rightarrow CH3O + M$	-93.1	C	THIRD ORDER FORWARD
205R. $CH3O + M \rightarrow CH3 + O + M$	93.1	C	STABILIZATION UNLIKELY REVERSE ENDOTHERMIC
206F. $CH3 + O2 \rightarrow CH3O + O$	29.0	B B	CONSIDER BOTH DIRECTIONS
206R. $CH3O + O \rightarrow CH3 + O2$	-29.0	B B	FORWARD FOR CH3 BREAKDOWN
207F. $CH3O + H \rightarrow CH4 + O$	-15.1	C	$CH3O + H \rightarrow CH2O + H2$ MORE LIKELY FORWARD
207A. $CH4 + O \rightarrow CH3O + H$	15.1	C	$CH4 + O \rightarrow CH3 + HO$ MORE LIKELY REVERSE
208F. $CH3O + HN \rightarrow CH4 + NO$	-90.3	C	LOW CONCENTRATIONS FORWARD
208A. $CH4 + NO \rightarrow CH3O + HN$	90.3	C	REVERSE ENDOTHERMIC
209F. $CH3O + HNO \rightarrow CH4 + NO2$	-37.1	C	LOW CONCENTRATIONS BOTH DIRECTIONS
209R. $CH4 + NO2 \rightarrow CH3O + HNO$	37.1	C	FOUR-CENTER, STERIC HINDRANCE
210F. $CH3O + HO \rightarrow CH4 + O2$	-30.8	C	FOUR-CENTER, STERIC HINDRANCE
210R. $CH4 + O2 \rightarrow CH3O + HO$	30.8	C	

REACTION	KB	NOTES	COMMENTS
211F. $CH3O + HZ \rightarrow CH4 + HO$	-12.9	C	FOUR-CENTER, STERIC HINDRANCE
211R. $CH4 + HO \rightarrow CH3O + HZ$	12.9	C	
212F. $CH3O + HZO \rightarrow CH4 + HO2$	42.1	C	FOUR-CENTER, STERIC HINDRANCE
212R. $CH4 + HO2 \rightarrow CH3O + HZO$	-42.1	C	
213F. $CN + HO \rightarrow CO + HN$	-69.9	C	FOUR-CENTER REACTION
213R. $CO + HN \rightarrow CN + HO$	69.9	C	$CN + HO \rightarrow CHN + O$ MORE LIKELY FORWARD REVERSE ENDOTHERMIC
214F. $CN + HO2 \rightarrow CO + HNO$	-111.7	C	FOUR-CENTER FOR NON STRUCTURE
214R. $CO + HNO \rightarrow CN + HO2$	111.7	C	REVERSE HIGHLY ENDOTHERMIC
215F. $CN + HOZ \rightarrow CO2 + HN$	-111.2	C	NOT LIKELY TO BE ELEMENTARY REACTION
215R. $CO2 + HN \rightarrow CN + HOZ$	111.2	C	
216F. $CN + NO \rightarrow CO + N2$	-352.6	B B	CONSIDER FORWARD FOR NO DESTRUCTION
216R. $CO + N2 \rightarrow CN + NO$	352.6	C	REVERSE HIGHLY ENDOTHERMIC FOUR-CENTER REACTION
217F. $CN + NO2 \rightarrow CO + N2O$	-117.7	C	FOUR-CENTER, STERIC HINDRANCE
217R. $CO + N2O \rightarrow CN + NO2$	117.7	C	REVERSE HIGHLY ENDOTHERMIC
218F. $CN + NO2 \rightarrow CO2 + N2$	-209.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
218R. $CO2 + N2 \rightarrow CN + NO2$	209.3	C	
219F. $CN + O \rightarrow CO + N$	-77.2	B B	CONSIDER FORWARD
219R. $CO + N \rightarrow CN + O$	77.2	C	REVERSE ENDOTHERMIC
220F. $CN + O2 \rightarrow CO + NO$	-109.3	B B	FOUR-CENTER REACTION, PROBABLY SLOW
220R. $CO + NO \rightarrow CN + O2$	109.3	C	REVERSE HIGHLY ENDOTHERMIC

REACTION	LOG A	B	E	COMMENTS	800	1500	2000	2500
						LOG K		
201R. $CH4 + NO \rightarrow CHO + HZO$	9.8 10.3	0.	0. (0.0)	BASED ON 6693 644,829,333,83)	9.9	10.0	10.0	10.1
202F. $CH3 + NO \rightarrow CH3O + N$				NO RATE DATA				
203F. $CH3 + NO2 \rightarrow CH3O + NO$				NO RATE DATA				
204F. $CH3 + N2O \rightarrow CH3O + N2$				NO RATE DATA				
205F. $CH3 + O + M \rightarrow CH3O + M$				NO RATE DATA				
206F. $CH3 + O2 \rightarrow CH3O + O$	9.8	0.	30.	581 ESTIMATE	-9.0	9.1	9.2	9.9
207F. $CH3O + H \rightarrow CH2O + H2$				NO RATE DATA				
208F. $CH3O + HN \rightarrow CH4 + NO$				NO RATE DATA				
209F. $CH3O + HNO \rightarrow CH4 + NO2$				NO RATE DATA				
210F. $CH3O + HO \rightarrow CH4 + O2$				NO RATE DATA				

REACTION	LOG A	B	E	COMMENTS	800	1500	2000	2500
						LOG K		
211F. $CH3O + HZ \rightarrow CH4 + HO$				NO RATE DATA				
212F. $CH3O + HZO \rightarrow CH4 + HO2$				NO RATE DATA				
213F. $CN + HO \rightarrow CO + HN$				NO RATE DATA				
214F. $CN + HO2 \rightarrow CO + HNO$				NO RATE DATA				
215F. $CN + HOZ \rightarrow CO2 + HN$				NO RATE DATA				
216F. $CN + NO \rightarrow CO + N2$ 216R. $CO + N2 \rightarrow CN + NO$	11.9 10.9	0.	0. (0.)	BASED ON DTD 1977; ASSUME ACT ENERGY++ NOTE D	11.9	11.9	11.9	11.9
217F. $CN + NO2 \rightarrow CO + N2O$				NO RATE DATA				
218F. $CN + NO2 \rightarrow CO2 + N2$				NO RATE DATA				
219F. $CN + O \rightarrow CO + N$	10. 10.9	0.	0. (0.)	BASED ON DTD 83; ASSUME ACT ENERGY++ NOTE D	12.0	12.0	12.0	12.0
220F. $CN + O2 \rightarrow CO + NO$	11.9 10.9	0.	0. 110.)	BASED ON DTD 1977; UPPER LIMIT AT 2000 ASSUME ACT ENERGY++ NOTE D	11.9	11.9	11.9	11.9

REACTION	HR	NOTES	COMMENTS
221F. CN + O2 = CO2 + N	-82.6	C	NOT LIKELY TO BE ELEMENTARY REACTION
221R. CO2 + N = CN + O2	82.6	C	
222F. CO + HNO = CO2 + HN	0.4	C	HNO, HN MINOR RX PARTNERS FOR CO, CO2
222R. CO2 + HN = CO + HNO	-0.4	C	
223F. CO + HO = CO2 + H	-21.1	A *	FORWARD MAJOR PATH FROM CO TO CO2
223R. CO2 + H = CO + HO	21.1	B *	CONSIDER BOTH DIRECTIONS
224F. CO + HO2 = CO2 + HO	-61.3	C	CO + HO = CO2 + H VERY IMPORTANT FORWARD
224R. CO2 + HO = CO + HO2	61.3	C	MAY HAVE MINOR SIDE FORWARD REVERSE ENDOTHERMIC
225F. CO + H2O = CO2 + H2	-6.3	C	NOT LIKELY TO BE ELEMENTARY REACTION
225R. CO2 + H2 = CO + H2O	6.3	C	
226F. CO + NO = CO2 + N	26.7	C	SPIN HINDERED
226R. CO2 + N = CO + NO	-26.7	C	EXPERIMENT INDICATES REACTION SLOW
227F. CO + NO2 = CO2 + NO	-52.7	C	LOW CONCENTRATIONS FORWARD
227R. CO2 + NO = CO + NO2	52.7	C	REVERSE ENDOTHERMIC
228F. CO + N2O = CO2 + N2	-87.6	C	CO, N2O MINOR REACTION PARTNERS
228R. CO2 + N2 = CO + N2O	87.6	C	REVERSE ENDOTHERMIC
229F. CO + O + M = CO2 + M	-127.6	B *	FORWARD TERMINATION REACTION
229R. CO2 + M = CO + O + M	127.6	C	REVERSE HIGHLY ENDOTHERMIC
230F. CO + O2 = CO2 + O	-5.4	B *	CONSIDER BOTH DIRECTIONS
230R. CO2 + O = CO + O2	5.4	B *	PROBABLY SLOWER THAN CO + HO = CO2 + H

REACTION	LOG A	N	E	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
221F. CN + O2 = CO2 + N				NO RATE DATA		LOG K		
222F. CO + HNO = CO2 + HN	11.0 10.5)	0.5	7. (5.)	BASED ON TI (E55) NOTE B	7.1	11.8	11.9	12.1
223F. CO + HO = CO2 + H	* 7.1X	1.3	0.7X	RATES ON BMR FIT TO BPTL DATA FROM 300-2500K	9.8	11.2	11.4	11.5
224F. CO + HO2 = CO2 + HO	11. 10.5)	0.	10. (5.)	BASED ON LIN (E68)	5.7	9.5	9.9	10.1
225F. CO + H2O = CO2 + H2	9.0 10.5)	0.5	15. (5.)	BASED ON TI (E55) NOTE B	-0.7	8.4	9.0	9.4
226F. CO + NO = CO2 + N	11.4 11.)	0.5	30. (20.)	BASED ON TI WITH HIGHER E SPIN HINDERED	-9.3	8.5	9.7	10.4
227F. CO + NO2 = CO2 + NO	12.3 10.5)	0.	30. (5.)	BASED ON RAS	-19.5	7.9	9.0	9.7
228F. CO + N2O = CO2 + N2	11.0 10.5)	0.	20. (5.)	BASED ON LH,M29 NOTE D	-3.6	8.1	8.8	9.3
229F. CO + O + M = CO2 + M	* 15. 10.5)	0.	100. (5.)	BASED ON C29,01 COMPLEX REACTION	-57.9	8.4	9.1	9.5
230F. CO + O2 = CO2 + O	* 12.5 10.5)	0.	50. (10.)	BASED ON S29,032,510 HI T DATA FAIR AGRE	-23.9	9.2	9.8	10.1

REACTION	HR	NOTES	COMMENTS
231F. H + H + M = H2 + M	-108.4	A *	FORWARD TERMINATION REACTION
231R. H2 + M = H + H + M	108.4	C	REVERSE HIGHLY ENDOTHERMIC
232F. H + HN = H2 + N	-29.5	B *	CONSIDER BOTH DIRECTIONS
232R. H2 + N = H + HN	29.5	B *	
233F. H + HNO = HN + HO	21.6	B *	CONSIDER BOTH DIRECTIONS
233R. HN + HO = H + HNO	-21.6	B *	PROBABLY MINOR
234F. H + HNO = H2 + NO	-55.7	B *	CONSIDER FORWARD, PROBABLY MINOR
234R. H2 + NO = H + HNO	55.7	C	REVERSE ENDOTHERMIC
235F. H + HNO = H2O + N	-22.8	C	POSSIBLE FOR NOH STRUCTURE
235R. H2O + N = H + HNO	22.8	C	PROBABLY MINOR
236F. H + HO = H2O + O	-2.2	A *	CONSIDER BOTH DIRECTIONS
236R. H2O + O = H + HO	2.2	A *	
237F. H + HO + M = H2O + M	-123.3	A *	FORWARD TERMINATION REACTION
237R. H2O + M = H + HO + M	123.3	C	REVERSE HIGHLY ENDOTHERMIC
238F. H + HO2 = HO + HO	-40.2	B *	CONSIDER FORWARD FOR HO2 REMOVAL
238R. HO + HO = H + HO2	40.2	C	HO + HO = H2O + O FASTER THAN REVERSE
239F. H + HO2 = H2 + O2	-58.1	B *	CONSIDER FORWARD FOR HO2 REMOVAL
239R. H2 + O2 = H + HO2	58.1	C	REVERSE ENDOTHERMIC
240F. H + HO2 = H2O + O	-57.2	C	FORWARD PRODUCTS MORE LIKELY TO BE
240R. H2O + O = H + HO2	57.2	C	HO + HO OR H2 + O2

REACTION	LOG A	N	E	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
231F. H + H + M = H2 + M	* 18.3 10.3)	0.	96. (5.)	BASED ON BDD, M = AR CRITICAL EVALUATION	-55.6	LOG K 8.3	8.8	9.0
232F. H + HN = H2 + N	* 11.8 10.3)	0.7	8. (5.)	BASED ON BAT (E33) TRANS STATE CORLAT	7.2	10.2	10.6	10.8
233F. H + HNO = HN + HO	* 12.3 10.5)	0.5	23. (5.)	BASED ON TI (E33) BY HIGHER E NOTE B	-4.2	9.3	10.0	10.3
234F. H + HNO = H2 + NO	* 13. 10.3)	0.	2.5 (2.)	BASED ON SI EVALUATION 200-2000K	11.2	11.5	11.7	11.8
235F. H + HNO = H2O + N				NO RATE DATA				
236F. H + HO = H2O + O	* 9.9 10.2)	1.	7. (5.8)	BASED ON A88 EVALUATION 300-2000K	7.5	12.1	12.4	12.7
237F. H + HO + M = H2O + M	* 22.3 11.3)	-2.	0.	BASED ON BDD, M = N2 (BUT EVAL 1000-3000K	17.1	15.9	15.7	15.5
238F. H + HO2 = HO + HO	* 14.4 10.3)	0.	1.9 (1.)	BASED ON L35 EVALUATION 300-1000K	13.0	14.1	14.2	14.2
239F. H + HO2 = H2 + O2	* 13.4 10.3)	0.	0.7 (1.)	BASED ON L35 EVALUATION 300-1000K	12.9	13.3	13.3	13.3
240F. H + HO2 = H2O + O	13.0 10.)	0.	1. (1.)	BASED ON L35 EVALUATION 300-1000K	12.3	12.9	12.9	12.9

REACTION	HR	NOTES	COMMENTS
241F. H + H2O → HO + H2 241R. HO + H2 → H + H2O	16.9 -16.9	A → A →	CONSIDER BOTH DIRECTIONS
242F. H + N + M → HN + M 242R. HN + M → H + N + M	-78.9 78.9	C C	THIRD ORDER, LOW CONCENTRATION; FORWARD REVERSE ENDOTHERMIC
243F. H + NO → HN + O 243R. HN + O → H + NO	75.9 -75.9	C B →	FORWARD ENDOTHERMIC CONSIDER REVERSE
244F. H + NO + M → HNO + M 244R. HNO + M → H + NO + M	-52.7 52.7	C C	THIRD ORDER FORWARD REVERSE ENDOTHERMIC
245F. H + NO → HO + N 245R. HO + N → H + NO	47.8 -47.8	B → A →	CONSIDER BOTH DIRECTIONS REVERSE PART OF MODIFIED ZELDOVICH
246F. H + NO2 → HN + O2 246R. HN + O2 → H + NO2	27.9 -27.9	C C	STERIC HINDRANCE OTHER PRODUCTS MORE LIKELY
247F. H + NO2 → HNO + O 247R. HNO + O → H + NO2	22.0 -22.0	C C	POSSIBLY FOR HON STRUCTURE OTHER PRODUCTS MORE LIKELY
248F. H + NO2 → HO + NO 248R. HO + NO → H + NO2	-31.6 31.6	B → B →	CONSIDER BOTH DIRECTIONS PROBABLY UNIMPORTANT
249F. H + NO2 → HO2 + N 249R. HO2 + N → H + NO2	56.4 -56.4	C C	NOT LIKELY TO BE ELEMENTARY REACTION
250F. H + N2 → HN + N 250R. HN + N → H + N2	150.5 -150.5	C C	FORWARD HIGHLY ENDOTHERMIC LOW CONCENTRATIONS REVERSE

REACTION	LOG A	B	E	COMMENTS	REF	TEMP, KELVIN 1500	2000	2500
						LOG K		
241F. H + H2O → HO + H2	* 13.6	0.	5.2	BASED ON RRR	9.A	12.8	12.8	12.9
241R. HO + H2 → H + H2O	13.1		5.2	EVALUATION 300-2500K				
242F. H + N + M → HN + M	17.4	-0.5	0.	BASED ON TI (1977)	16.2	15.8	15.7	15.7
242R. HN + M → H + N + M	18.		2.	AND BDI (1971)				
243F. H + NO → HN + O	* 11.8	0.5	0.	BASED ON RRT	13.C	13.A	13.A	13.A
243R. HN + O → H + NO	10.8		1.	TRANS STATE CORRLAT				
244F. H + NO + M → HNO + M	15.7	0.	-0.6	BASED ON RRR, M = N2	16.1	15.8	15.8	15.8
244R. HNO + M → H + NO + M	15.8		2.91	EVALUATION 250-10K				
245F. H + NO → HO + N	* 11.8	0.5	0.	BASED ON RRT	13.C	13.A	13.A	13.A
245R. HO + N → H + NO	10.8		1.	TRANS STATE CORRL				
				AGREES W/ RRK LA APT				
246F. H + NO2 → HN + O2				NO RATE DATA				
246R. HN + O2 → H + NO2								
247F. H + NO2 → HNO + O	10.3	0.5	0.	BASED ON TI (1977)	11.A	12.A	12.A	12.A
247R. HNO + O → H + NO2	10.8		1.	NOTE B				
248F. H + NO2 → HO + NO	* 14.5	0.	1.5	BASED ON GRD	13.A	14.A	14.A	14.A
248R. HO + NO → H + NO2	13.8		1.	EVALUATION 300-4300				
249F. H + NO2 → HO2 + N				NO RATE DATA				
249R. HO2 + N → H + NO2								
250F. H + N2 → HN + N	13.8	0.5	0.	BASED ON RRT	13.C	13.A	13.A	13.A
250R. HN + N → H + N2	10.2		1.	TRANS STATE CORRLAT				

REACTION	HR	NOTES	COMMENTS
251F. H + N2O → HN + NO 251R. HN + NO → H + N2O	36.2 -36.2	C C	H + N2O → HO + N2 FASTER FORWARD LOW CONCENTRATIONS REVERSE
252F. H + H2O → HNO + H 252R. HNO + H → H + N2O	62.5 -62.5	C C	FORWARD ENDOTHERMIC LOW CONCENTRATIONS REVERSE
253F. H + N2O → HO + N2 253R. HO + N2 → H + N2O	-66.6 66.6	B → C	CONSIDER FORWARD REVERSE ENDOTHERMIC
254F. H + O + M → HO + M 254R. HO + M → H + O + M	-106.3 106.3	A → C	FORWARD REMOVES ACTIVE CENTERS REVERSE HIGHLY ENDOTHERMIC
255F. H + O2 → HO + O 255R. HO + O → H + O2	15.7 -15.7	A → A →	CONSIDER BOTH DIRECTIONS
256F. H + O2 + M → HO2 + M 256R. HO2 + M → H + O2 + M	-50.4 50.4	B → C	CONSIDER FORWARD REVERSE ENDOTHERMIC
257F. HN + HN → H2 + N2 257R. H2 + N2 → HN + HN	-180.0 180.0	C C	FOUR-CENTER REACTION LOW CONCENTRATIONS FORWARD REVERSE HIGHLY ENDOTHERMIC
258F. HN + HNO → H2 + N2O 258R. H2 + N2O → HN + HNO	-92.0 92.0	C C	FOUR-CENTER, STERIC HINDRANCE LOW CONCENTRATIONS FORWARD REVERSE ENDOTHERMIC
259F. HN + HNO → H2O + N2 259R. H2O + N2 → HN + HNO	-173.3 173.3	C C	FOUR-CENTER, STERIC HINDRANCE
260F. HN + NO → H2 + NO 260R. H2 + NO → HN + NO	-77.3 77.3	C C	FOUR-CENTER REACTION HN + NO → H2O + N MORE LIKELY FORWARD REVERSE ENDOTHERMIC

REACTION	LOG A	B	E	COMMENTS	REF	TEMP, KELVIN 1500	2000	2500
						LOG K		
251F. H + N2O → HN + NO	13.2	0.5	30.	BASED ON TI (1977)	9.A	8.2	9.A	10.1
251R. HN + NO → H + N2O	10.8		5.	NOTE B				
252F. H + H2O → HNO + H	13.7	0.5	3.	BASED ON TI (1977)	9.A	11.9	12.0	12.1
252R. HNO + H → H + N2O	10.8		5.	NOTE B				
253F. H + N2O → HO + N2	* 13.9	0.	15.	BASED ON GRD	3.C	11.7	12.3	12.6
253R. HO + N2 → H + N2O	12.8		1.	EVALUATION 700-2500K				
254F. H + O + M → HO + M	* 15.9	0.	0.	BASED ON SRI	15.C	15.9	15.9	15.9
254R. HO + M → H + O + M	15.			LIMITED DATA				
255F. H + O2 → HO + O	* 13.4	0.	0.	BASED ON WSI	13.A	13.A	13.A	13.A
255R. HO + O → H + O2	10.8			EVALUATION 300-2000K				
256F. H + O2 + M → HO2 + M	* 15.3	0.	0.	BASED ON RRR, M = N2	14.A	15.2	15.2	15.2
256R. HO2 + M → H + O2 + M	13.4		0.49	EVALUATION 300-2000K				
257F. HN + HN → H2 + N2	13.0	0.	0.	ESTIMATE OF DR	17.C	13.0	13.0	13.0
257R. H2 + N2 → HN + HN	13.			REDUCED BY 10X				
258F. HN + HNO → H2 + N2O				NO RATE DATA				
258R. H2 + N2O → HN + HNO								
259F. HN + HNO → H2O + N2				NO RATE DATA				
259R. H2O + N2 → HN + HNO								
260F. HN + NO → H2 + NO				NO RATE DATA				
260R. H2 + NO → HN + NO								

REACTION	HR	NOTES	COMMENTS
261F. MN + HO + HNO → N + H2O	-44.6	B *	CONSIDER FORWARD
261R. H2O + N → NO + HO	44.6	C	REVERSE ENDOTHERMIC
262F. MN + HO2 → HNO + HO	-81.8	C	LOW CONCENTRATIONS FORWARD
262R. HNO + HO → MN + HO2	81.8	C	REVERSE ENDOTHERMIC
263F. MN + HO2 → H2 + NO2	-86.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
263R. H2 + NO2 → MN + HO2	86.0	C	
264F. MN + HO2 → H2O + NO	-132.4	C	FOUR-CENTER REACTION, STERIC HINDRANCE
264R. H2O + NO → MN + HO2	132.4	C	
265F. MN + H2O → HNO + H2	-6.7	C	FOUR-CENTER REACTION STERIC HINDRANCE
265R. HNO + H2 → MN + H2O	6.7	C	NOH STRUCTURE
266F. MN + NO → HNO + N	26.2	C	LOW CONCENTRATIONS BOTH DIRECTIONS
266R. HNO + N → MN + NO	-26.2	C	
267F. MN + NO → HO + N2	-102.7	C	FOUR-CENTER REACTION
267R. HO + N2 → MN + NO	102.7	C	LOW CONCENTRATIONS FORWARD REVERSE HIGHLY ENDOTHERMIC
268F. MN + NO2 → HNO + NO	-53.2	C	LOW CONCENTRATIONS BOTH DIRECTIONS
268R. HNO + NO → MN + NO2	53.2	C	
269F. MN + NO2 → HO + N2O	-67.8	C	FOUR-CENTER REACTION, STERIC HINDRANCE
269R. HO + N2O → MN + NO2	67.8	C	LOW CONCENTRATIONS FORWARD REVERSE ENDOTHERMIC
270F. MN + NO2 → HO2 + N2	-94.0	C	NOT LIKELY TO BE ELEMENTARY REACTION
270R. HO2 + N2 → MN + NO2	94.0	C	

REACTION	LOG A	B	E	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
						LOG K		
261F. MN + HO → HNO + N	* 11.7	0.5	2.	BASED ON T1 (EST)	11.5	13.0	13.1	13.2
	10.5)		(5.)	NOTE B				
262F. MN + HO2 → HNO + HO				NO RATE DATA				
263F. MN + HO2 → H2 + NO2				NO RATE DATA				
264F. MN + HO2 → H2O + NO				NO RATE DATA				
265F. MN + H2O → HNO + H2				NO RATE DATA				
266F. MN + NO → HNO + N	11.0	0.5	2.	BASED ON T1 (EST)	10.8	12.3	12.4	12.5
	10.5)		(5.)	NOTE B				
267F. MN + NO → HO + N2				NO RATE DATA				
268F. MN + NO2 → HNO + NO	11.3	0.5	5.	BASED ON T1 (EST)	8.9	12.2	12.4	12.6
	10.5)		(5.)	NOTE B				
269F. MN + NO2 → HO + N2O				NO RATE DATA				
270F. MN + NO2 → HO2 + N2				NO RATE DATA				

REACTION	HR	NOTES	COMMENTS
271F. MN + N2O → HNO + N2	-88.0	C	LOW CONCENTRATIONS FORWARD
271R. HNO + N2 → MN + N2O	88.0	C	REVERSE ENDOTHERMIC
272F. MN + O + M → HNO + M	-127.9	C	THIRD ORDER FORWARD
272R. HNO + M → MN + O + M	127.9	C	REVERSE HIGHLY ENDOTHERMIC
273F. MN + O → HO + N	-27.6	C	MN + O → H + NO MORE LIKELY FORWARD
273R. HO + N → MN + O	27.6	C	HO + N → H + NO MORE LIKELY REVERSE
276F. MN + O2 → HNO + O	-5.8	B *	CONSIDER BOTH DIRECTIONS
276R. HNO + O → MN + O2	5.8	B *	PROBABLY MINOR
275F. MN + O2 → HO + NO	-59.4	C	FOUR-CENTER REACTION
275R. HO + NO → MN + O2	59.4	C	MN + O2 → HNO + O FASTER FORWARD REVERSE ENDOTHERMIC
276F. MN + O2 → H2 + N	28.6	C	MN + O2 → HNO + O FASTER FORWARD
276R. HO2 + N → MN + O2	-28.6	C	LOW CONCENTRATIONS REVERSE
277F. HNO + M → HO + N + M	130.5	C	FORWARD HIGHLY ENDOTHERMIC
277R. HO + N + M → HNO + M	-130.5	C	THIRD ORDER REVERSE NOH STRUCTURE
278F. HNO + HNO → H2O + N2O	-85.3	C	FOUR-CENTER REACTION, STERIC HINDRANCE
278R. H2O + N2O → HNO + HNO	85.3	C	
279F. HNO + HO → H2 + NO2	-24.2	C	FOUR-CENTER REACTION
279R. H2 + NO2 → HNO + HO	24.2	C	HNO + HO → H2O + NO MORE LIKELY FORWARD LOW CONCENTRATIONS REVERSE
280F. HNO + HO → H2O + NO	-70.6	B *	CONSIDER FORWARD
280R. H2O + NO → HNO + HO	70.6	C	REVERSE ENDOTHERMIC

REACTION	LOG A	B	E	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
						LOG K		
271F. MN + N2O → HNO + N2	11.0	0.5	2.	BASED ON T1 (EST)	10.1	12.2	12.3	12.4
	10.5)		(5.)	NOTE B				
272F. MN + O + M → HNO + M	16.0	-0.5	0.	BASED ON T1 (EST)	14.8	15.4	15.2	15.1
	15.9)		(5.)	NOTE B				
273F. MN + O → HO + N	11.5	0.5	0.	BASED ON KST	8.9	11.9	12.3	12.5
	10.3)		(5.)	TRANS STATE CORRELAT				
276F. MN + O2 → HNO + O	* 11.0	0.5	2.	BASED ON T1 (EST)	7.1	11.6	11.9	12.1
	10.5)		(5.)	NOTE B				
275F. MN + O2 → HO + NO				NO RATE DATA				
276F. MN + O2 → H2 + N	11.5	0.	0.	BASED ON K25 (EXP)	11.0	11.0	11.0	11.0
	10.5)		(5.)	LOWER LIMIT AT 300K				
				NOTE D				
277F. HNO + M → HO + N + M	15.0	-0.5	0.	BASED ON T1 (EST)	13.8	13.4	13.3	13.3
				NOTE B				
278F. HNO + HNO → H2O + N2O				NO RATE DATA				
279F. HNO + HO → H2 + NO2				NO RATE DATA				
280F. HNO + HO → H2O + NO	* 13.5	0.	0.	BASED ON RRK-HSS	13.5	13.5	13.5	13.5
	13.5)		(2.)					

REACTION	HR	NOTES	COMMENTS
281F. HNO + HO2 = H2O + NO2 281R. H2O + NO2 = HNO + HO2	-79.2 79.2	C C	FOUR-CENTER REACTION, STERIC HINDRANCE
282F. HNO + N = HO + N2 282R. HO + N2 = H2O + N	-128.9 128.9	C C	LOW CONCENTRATIONS FORWARD REVERSE HIGHLY ENDOTHERMIC
283F. HNO + NO = HO + N2O 283R. HO + N2O = HNO + NO	-16.7 16.7	C C	FOUR-CENTER REACTION, STERIC HINDRANCE
284F. HNO + NO = HO2 + N2 284R. HO2 + N2 = HNO + NO	-60.9 60.9	C C	FOUR-CENTER REACTION, HIGH STRUCTURE LOW CONCENTRATIONS FORWARD REVERSE ENDOTHERMIC
285F. HNO + NO2 = HO2 + N2O 285R. HO2 + N2O = HNO + NO2	-6.0 6.0	C C	FOUR-CENTER REACTION, STERIC HINDRANCE
286F. HNO + O = HO + NO 286R. HO + NO = HNO + O	-53.6 53.6	B * C	CONSIDER FORWARD REVERSE ENDOTHERMIC
287F. HNO + O = HO2 + N 287R. HO2 + N = HNO + O	34.4 -34.4	C C	HNO + O = HO + NO FASTER FORWARD LOW CONCENTRATIONS REVERSE
288F. HNO + O2 = HO + NO2 288R. HO + NO2 = HNO + O2	-6.3 6.3	C C	FOUR-CENTER REACTION, STERIC HINDRANCE
289F. HNO + O2 = HO2 + NO 289R. HO2 + NO = HNO + O2	2.4 -2.4	C C	FOUR-CENTER REACTION, STERIC HINDRANCE
290F. HO + HO = H2 + O2 290R. H2 + O2 = HO + HO	-17.9 17.9	C C	FOUR-CENTER REACTION HO + HO = H2O + O FASTER FORWARD REVERSE MAY HAVE ROLE IN H2/O2 IGNITION

REACTION	HR	NOTES	COMMENTS
291F. HO + HO + H2O = O 291R. H2O + O = HO + HO	-17.0 17.0	A * A *	CONSIDER BOTH DIRECTIONS
292F. HO + HO2 = H2O + O2 292R. H2O + O2 = HO + HO2	-73.0 73.0	A * C	CONSIDER FORWARD FOR HO2 REMOVAL REVERSE ENDOTHERMIC
293F. HO + H2O = HO2 + H2 293R. HO2 + H2 = HO + H2O	55.1 -55.1	C C	FOUR-CENTER REACTION FORWARD ENDOTHERMIC
294F. HO + NO = HO2 + N 294R. HO2 + N = HO + NO	88.0 -88.0	C C	FORWARD ENDOTHERMIC LOW CONCENTRATIONS REVERSE
295F. HO + HO2 = H2O + NO 295R. H2O + NO = HO + NO2	-6.6 6.6	B * B *	CONSIDER BOTH DIRECTIONS REVERSE HAS BEEN CONSIDERED FOR EARLY NO2 FORMATION
296F. HO + N2O = HO2 + N2 296R. HO2 + N2 = HO + N2O	-26.2 26.2	B * B *	CONSIDER BOTH DIRECTIONS PROBABLY MINOR
297F. HO + O + M = HO2 + M 297R. HO2 + M = HO + O + M	-66.1 66.1	B * C	CONSIDER FORWARD REVERSE ENDOTHERMIC
298F. HO + O2 = HO2 + O 298R. HO2 + O = HO + O2	55.9 -55.9	C A *	FORWARD ENDOTHERMIC CONSIDER REVERSE FOR HO2 REMOVAL
299F. H2 + NO = H2O + N 299R. H2O + N = H2 + NO	32.8 -32.8	C C	NOT LIKELY TO BE ELEMENTARY REACTION
300F. H2 + NO2 = H2O + NO 300R. H2O + NO = H2 + NO2	-98.4 98.4	C C	NOT LIKELY TO BE ELEMENTARY REACTION

REACTION	LOG A	N	E	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
						LOG K		
281F. HNO + HO2 = H2O + NO2				NO RATE DATA				
282F. HNO + N = HO + N2				NO RATE DATA				
283F. HNO + NO = HO + N2O	12.3 10.8)	0.	28. (5.)	BASED ON W77 REEVALUATION OF EXISTING H2-NO DATA	-4.4	8.3	9.5	10.0
284F. HNO + NO = HO2 + N2				NO RATE DATA				
285F. HNO + NO2 = HO2 + N2O				NO RATE DATA				
286F. HNO + O = HO + NO	* 11.7 10.8)	0.5	0. (5.)	BASED ON TS (ESTI) NOTE R	12.9	13.3	13.4	13.-
287F. HNO + O = HO2 + N				NO RATE DATA				
288F. HNO + O2 = HO + NO2				NO RATE DATA				
289F. HNO + O2 = HO2 + NO				NO RATE DATA				
290F. H2 + O2 = HO + HO	12.4 11.-)	0.-	39. (10.)	BASED ON A2 (AP3) NOTE Q	-16.0	6.7	8.1	9.0

REACTION	LOG A	N	E	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
						LOG K		
291F. HO + HO + H2O = O	* 12.8 10.9)	0.-	1. (0.5)	BASED ON RRK EVALUATION NPS-2000A	12.1	12.7	12.7	12.7
292F. HO + HO2 = H2O + O2	* 13.2 10.9)	0.-	1. (1.)	BASED ON L16 EVALUATION RRD-1000A	13.0	13.4	13.4	13.4
293F. H2 + H2O = HO2 + H2				NO RATE DATA				
294F. HO + NO = HO2 + N				NO RATE DATA				
295F. HO + HO2 = H2O + NO	* 13.0 10.9)	0.-	1. (0.)	BASED ON L16 USING ACTIV ENERGY=0	13.0	13.4	13.7	13.7
296F. HO + N2O = HO2 + N2	* 13.5	0.-	15.	ESTIMATE NO RATE DATA	2.4	11.3	11.8	12.2
297F. HO + O + M = HO2 + M	* 17.0 12.-)	0.-	0.	BASED ON REF A24 NO VALID DATA (ABE)	17.0	17.0	17.0	17.0
298F. HO + O2 = HO2 + O	* 13.7 10.9)	0.-	1. (1.)	BASED ON L16 LIMITED DATA	13.0	13.4	13.4	13.4
299F. H2 + NO = H2O + N				NO RATE DATA				
300F. H2 + NO2 = H2O + NO				NO RATE DATA				

	REACTION	HR	NOTES	COMMENTS		REACTION	LOG A	B	E	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
												LOG K		
301F.	H2 + N2O → H2O + N2	-81.3	C	NOT LIKELY TO BE ELEMENTARY REACTION	301F.	H2 + N2O → H2O + N2				NO RATE DATA				
301R.	H2O + N2 → H2 + N2O	81.3	C											
302F.	H2 + O + M → H2O + M	-121.2	C	NOT LIKELY TO BE ELEMENTARY REACTION	302F.	H2 + O + M → H2O + M				NO RATE DATA				
302R.	H2O + M → H2 + O + M	121.2	C											
303F.	H2 + O2 → H2O + O	0.9	C	NOT LIKELY TO BE ELEMENTARY REACTION	303F.	H2 + O2 → H2O + O				NO RATE DATA				
303R.	H2O + O → H2 + O2	-0.9	C											
304F.	N + N + M → N2 + M	-229.4	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD	304R.	N2 + M → N + N + M	21.6 (0.3)	-1.6	225. (1.)	BASED ON BSD, M = N2 EVALUATION	-166.3	-16.3	-8.3	-3.5
304R.	N2 + M → N + N + M	229.4	C	REVERSE HIGHLY ENDOTHERMIC										
305F.	N + NO → N2 + O	-75.3	B *	CONSIDER BOTH DIRECTIONS	305F.	N + NO → N2 + O	* 13.2 (0.3)	0.	0.	BASED ON BSD EVALUATION 300-5000K	13.2	13.2	13.2	13.2
305R.	N2 + O → N + NO	75.3	A *	REVERSE PART OF ZELDOVICH MECHANISM										
306F.	N + NO + M → N2O + M	-115.2	C	THIRD ORDER, LOW CONCENTRATIONS FORWARD	306F.	N + NO + M → N2O + M				NO EVIDENCE OF IT REF 130	0.0	0.0	0.0	0.0
306R.	N2O + M → N + NO + M	115.2	C	REVERSE HIGHLY ENDOTHERMIC										
307F.	N + NO2 → NO + NO	-79.4	B *	CONSIDER FORWARD (LOW CONCENTRATIONS)	307F.	N + NO2 → NO + NO	* 12.8 (0.7)	0.	0. (3.)	BASED ON FIG (EPT) ASSUME ACT ENERGY=0 NOTE D	12.8	12.8	12.8	12.8
307R.	NO + NO → N + NO2	79.4	C	REVERSE ENDOTHERMIC										
308F.	N + NO2 → N2 + O2	-122.6	C	NOT LIKELY TO BE ELEMENTARY REACTION	308F.	N + NO2 → N2 + O2	12.0 (0.3)	0.	0. (3.)	BASED ON FIG (EPT) ASSUME ACT ENERGY=0 NOTE D	12.0	12.0	12.0	12.0
308R.	N2 + O2 → N + NO2	122.6	C											
309F.	N + NO2 → N2O + O	-60.4	C	N + NO2 → NO + NO MORE LIKELY FORWARD	309F.	N + NO2 → N2O + O	12.7 (0.3)	0.	0. (3.)	BASED ON FIG (EPT) ASSUME ACT ENERGY=0 NOTE D	12.7	12.7	12.7	12.7
309R.	N2O + O → N + NO2	60.4	C	REVERSE ENDOTHERMIC										
310F.	N + N2O → NO + N2	-114.2	C	LOW CONCENTRATIONS FORWARD	310F.	N+N2O → NO + N2	8.7 (0.3)	0.	10. (5.)	BASED ON DIX (EST) NOTE A	1.6	7.2	7.8	7.8
310R.	NO + N2 → N + N2O	114.2	C	REVERSE HIGHLY ENDOTHERMIC										

	REACTION	HR	NOTES	COMMENTS		REACTION	LOG A	B	E	COMMENTS	300	TEMP, KELVIN 1500	2000	2500
												LOG K		
311F.	N + O + M → NO + M	-154.1	C	THIRD ORDER, LOW CONCENTRATION FORWARD	311R.	NO + M → N + O + M	20.6 (0.3)	-1.5	150. (1.5)	BASED ON DIX, M= M = AR, N2, O2 USE WITH CAUTION	-92.5	-4.0	-0.7	2.4
311R.	NO + M → N + O + M	154.1	C	REVERSE HIGHLY ENDOTHERMIC										
312F.	N + O2 → NO + O	-32.1	A *	CONSIDER BOTH DIRECTIONS	312F.	N + O2 → NO + O	* 9.8 (0.3)	1.	6.3 (0.5)	BASED ON BSD EVALUATION 300-5000K	7.7	12.1	12.5	12.6
312R.	NO + O → N + O2	32.1	B *	FORWARD PART OF ZELDOVICH MECHANISM										
313F.	N + O2 + M → NO2 + M	-106.8	C	NOT LIKELY TO BE ELEMENTARY REACTION	313F.	N + O2 + M → NO2 + M				NO RATE DATA				
313R.	NO2 + M → N + O2 + M	106.8	C											
314F.	NO + NO → N2 + O2	-43.2	C	FOUR-CENTER REACTION, SPIN HINDERED	314F.	NO + NO → N2 + O2				SPIN HINDERED OLD EXPERIMENTS ACTUALLY MEASURED NO + NO → N2O + O	0.0	0.0	0.0	0.0
314R.	N2 + O2 → NO + NO	43.2	C	NO + NO → N2O + O FASTER EXPERIMENTALLY POSSIBLY BY AT LEAST A FACTOR OF 10										
315F.	NO + NO → N2O + O	38.9	B *	CONSIDER BOTH DIRECTIONS	315R.	N2O + O → NO + NO	* 14.0 (0.3)	0.	28. (3.)	BASED ON BSD EVAL 1200-2000 SAME RATE AS N2O + O → N2 + O2	-6.5	9.9	10.9	11.4
315R.	N2O + O → NO + NO	-38.9	B *											
316F.	NO + NO2 → N2O + O2	-8.6	C	NOT LIKELY TO BE ELEMENTARY REACTION	316F.	NO + NO2 → N2O + O2	12.0 (2.)	0.	60.	BASED ON DIX (EST) NOTE A	-31.7	3.3	5.6	6.9
316R.	N2O + O2 → NO + NO2	8.6	C											
317F.	NO + N2O → NO2 + N2	-34.9	C	FORWARD SLOW EXPERIMENTALLY	317F.	NO + N2O → NO2 + N2	15.3 (1.)	0.	90.	BASED ON FEA,KIN NOTE D	-22.1	7.0	8.8	9.9
317R.	NO2 + N2 → NO + N2O	34.9	C	REVERSE EVEN SLOWER										
318F.	NO + O + M → NO2 + M	-76.7	B *	CONSIDER FORWARD	318R.	NO2 + M → NO + O + M	* 16.0 (0.3)	0. (1.5)	65. MAR.02	BASED ON BSD, M= 1500-2400K	-31.4	4.5	6.9	10.1
318R.	NO2 + M → NO + O + M	76.7	C	REVERSE ENDOTHERMIC										
319F.	NO + O2 → NO2 + O	47.3	B *	CONSIDER BOTH DIRECTIONS	319R.	NO2 + O → NO + O2	* 13.0 (0.3)	0.	1. (0.5)	BASED ON BSD EVALUATION 300-5000K NO HI TEMP DATA	17.3	12.9	12.9	12.9
319R.	NO2 + O → NO + O2	-47.3	B *	FORWARD ENDOTHERMIC										
320F.	NO + O + M → N2O + M	-39.9	B *	CONSIDER BOTH DIRECTIONS FOR ROLE OF N2O	320R.	N2O + M → N2 + O + M	* 14.2 (0.2)	0.	58. (3.)	BASED ON BSD, M = AR EVAL 1500-2500K	-27.6	6.2	8.4	9.6
320R.	N2O + M → N2 + O + M	39.9	B *											

REACTION	HR	NOTES	COMMENTS
321F. N2 + O2 = N2O + O	82.2	C	FORWARD ENDOTHERMIC
321R. N2O + O = N2 + O2	-82.2	B *	CONSIDER REVERSE
322F. O + O + M = O2 + M	-122.0	A *	FORWARD TERMINATION REACTION
322R. O2 + M = O + O + M	122.0	C	REVERSE HIGHLY ENDOTHERMIC

REACTION	LOG A	N	E	COMMENTS	500	TEMP, KELVIN 1500 (LOG K)	2000	2500
321R. N2O + O = N2 + O2	* 14.	0.	28.	BASED ON R92	-6.4	9.9	10.9	11.6
	13.6 [illegible]		[illegible]	EVAL 1200-2500K				
				SAME RATE AS				
				N2O + O = NO + NO				
322R. O2 + M = O + O + M	* 18.4	-1.	118.7	BASED ON 24, M = AR	-70.6	-2.1	2.1	4.9
	18.6	-1.	118.7	BASED ON 24, M = O2				
	13.8 [illegible]			CRITICAL EVALUATION				
				WIDE TEMP RANGE				